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JOURNAL  
OF THE  
BATH AND WEST AND SOUTHERN COUNTIES  
SOCIETY.



**JOURNAL**  
**OF THE**  
**BATH AND WEST AND SOUTHERN**  
**COUNTIES SOCIETY**

**FOR THE**  
**ENCOURAGEMENT OF**  
**AGRICULTURE, ARTS, MANUFACTURES AND COMMERCE.**

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**ESTABLISHED 1777.**

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**VOL. VII.**

**1912-1913.**

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**WORK AND LEARN.**

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3, Pierrepoint Street, Bath.*

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# JOURNAL OF THE BATH AND WEST AND SOUTHERN COUNTIES SOCIETY.

## Original Articles and Reports.

### I.—JOHNE'S DISEASE.

*By Professor J. Penberthy, F.R.C.V.S.*

Under its new name this malady has recently attracted considerable attention from stockowners and scientists, a fact dependent, to no small extent, on the re-christening. Indeed, it is not infrequently referred to as a new disease of cattle, as though it were something fresh to our experience in this country. There is, however, good reason for believing that John's disease is but an old acquaintance with a new name, and that we have for many years been familiar with its subjects under various more or less euphonious appellations of local origin, such as "scanters," "skeinters," "piners," "wasters," "shooters," "hitters," etc. It is not intended to convey the idea that all animals to which these designations have been applied have been affected with the newly-named malady, but that the subjects of John's disease have been, with others, included. For many years such animals were regarded as tuberculous, and it is highly probable that a certain though small proportion of those so designated owed their condition to the tubercle bacillus. It is also ascertained that many cattle seriously affected by parasitic worms have been brought within the definitions. It may, we venture to think, be safely assumed that a very considerable proportion, if not the great majority, of animals to which it has been customary to apply the above-mentioned local terms have been affected with the disease now under review. It is not only in the British Isles that keen interest has been excited by comparatively recent discoveries which enable us to place the malady in its proper position in relation to its cause. It has within the past decade been identified in almost every European country and the

United States of America. At the International Veterinary Congress, held at The Hague in 1909, no less than five different papers referring to it were read. On more than one occasion during the past year it has been the subject of questions in Parliament.

Reference to old literature dealing with diseases of animals in this country, and giving descriptions of the symptoms of prevailing maladies, leaves little room for doubting that *Johne's Disease* is far from new to these islands. In replies to a circular issued by Youatt to stockowners and veterinarians in 1830, with a view of ascertaining what disorders of cattle were at that time most common, we find "*Diarrhœa*" returned as one of the six most commonly encountered. Though we now realise that this is merely a symptom of more than one disease, it is one of the most striking features of *Johne's Disease*, and further descriptions of cases, viewed in the light of our present knowledge give support, we think, to the belief that this affection has existed among our live-stock from what is usually described as "time immemorial."

There are no data on which to base a definite opinion as to whether this disease is more prevalent now than it was a century since. It is very curious to note the effect of the new naming of a disease and of bringing new discoveries concerning it into public notice. No more striking example could, perhaps, be adduced than the case of appendicitis in the human subject. Twenty years ago the ordinary layman was not cognisant of its name, nor, indeed, of its existence, yet within the past decade it has appeared to be as common as toothache, but we know of no reason why appendicitis should be of more frequent occurrence than formerly. Analogy between it and *Johne's Disease* may not, however, be carried further. It is quite possible that the latter, being contagious, may be becoming increasingly prevalent, and there is a rather common idea that cases are not infrequently imported with animals of a certain breed. Dr. Bang, of Copenhagen, states that he thinks he is able to say that "this is no uncommon disease in Denmark, that it must be a common disease in Jersey, and that it has been discovered in cows imported into Denmark from Jersey."

The true nature of this form of chronic bacterial inflammation of the bowels of cattle was first brought prominently to the notice of British veterinarians by Dr. Bang, at the meeting of the National Veterinary Association, at Liverpool, in July, 1906, where he exhibited material from animals affected with the disease in Denmark. After giving a lucid description of the various phases of the malady as occurring in his own country, including the characters of the bacillus which causes it, he expressed the belief that the disease

might exist and be rather common in this country, but that it had not been understood here up to that time. In the year following, Professor McFadyean reported in the *Journal of Comparative Pathology*, his discovery of this bacillus in each of nine animals which died after having been affected with long-continued diarrhoea and emaciation. These cases occurred on eight different farms in various parts of England. Since this date it has been demonstrated that the disease is more or less prevalent in many parts of this country.

The credit for the original discovery of the cause of the disease is due to Johne and Frothingham, who, in 1895, reported finding, in a case of inflammation of the bowels in a cow in Germany, immense numbers of acid-fast bacilli, which the discoverers were inclined to regard as of the type of tubercle bacillus responsible for tuberculosis of fowls—avian tuberculosis. Accordingly the disease was technically named “chronic pseudo-tuberculous inflammation of the bowels of cattle.” Further research appears to have proved that assumption untenable, and McFadyean, after identifying the bacillus in this country, named it “Johne’s (pronounced Yonah’s) bacillus,” and the disease in which it is found “Johne’s Disease;” thus associating the specific microbe and malady with the name of the discoverer, and avoiding the confusion which might arise by use of any term suggestive of tuberculosis of any form or type.

Until quite recently Johne’s Disease has been regarded as an affection of horned cattle only, and, as far as is now known, these are its most usual subjects. However, since discovery of the causal germ, which renders identification possible, its occurrence in deer, sheep and goats has been reported. It has undoubtedly been for a long period a source of serious loss to cattle owners, but our experience of its occurrence in sheep is far too limited to allow of our forming an opinion as to its frequency in animals of this species, though judging from an account in the Annual Report of the Animals Division of the Board of Agriculture for 1911 it appears not improbable that some of those serious outbreaks in our flocks in which diarrhoea and loss of condition are prominent features, and in which none of the commonly reputed causes have been recognised, may be attributable to Johne’s bacillus. The occurrence of the disease in deer and goats may, at first sight, appear a matter of little importance to agriculturists, but it is not without interest, as infected animals of these species may possibly contaminate pastures, etc., and thus introduce the germs and give rise to the disease in farm stock proper.

It not infrequently happens that only one animal is affected at

the same time in one situation, and of such cases usually very little notice is taken. Under other, though ill-defined circumstances, several may manifest symptoms simultaneously or within a short time of each other, when, naturally, alarm is created and the loss sustained is severe. A case has recently come under my investigation in which the tenant of a moderate sized farm has within two years lost cattle to the value of £350, in addition to suffering from the disorganisation of his dairy business. A neighbour on an adjoining farm had a similar experience two years previously. Unfortunately such occurrences are not rare. The affection, we now believe to be *Johne's Disease*, has been known to occur on some farms year after year for generations. This, from its nature we might expect, but it must not therefore be concluded that its occurrence is influenced by the nature of the soil, or of the situation, further than that these are affected by discharges from diseased animals. It will be readily understood that an animal discharging with its *fæces* innumerable bacilli may contaminate pastures which were previously healthy, and in this way establish the more or less permanent existence of the disease in new situations, for though it is not known how long the germs are capable of living in the outer world and retaining their power to infect, it has been ascertained that they live and remain effective for long periods within the infected animal and in culture media in the laboratory. Heifers and milking cows appear to be the most common subjects. Cattle, both pure-bred and cross-bred, are susceptible, and, so far as is known, equally so. It is, perhaps, only accidental that in my individual experience it has been more frequently met with in Jerseys, for I am aware that such has not been the experience of some other observers. Indeed, there is good reason for supposing that the incidence of this disease is, mainly, if not wholly, determined by opportunities for acquiring *Johne's bacilli*.

The subjects in which the characteristic symptoms are appreciable are usually over a year old, but from this it would not be correct to assume that animals may not be infected at an earlier age, for it is a remarkable feature of *Johne's Disease* that after the bacilli are taken in by an animal a long period elapses before symptoms are manifest. In experimental cases this has been as long as eight months. In cows the diarrhoea and emaciation are said to be often noticed soon after calving, the act of parturition being believed to hasten the progress of the disease. Though the infection is generally thought to be acquired while animals are at grass, the symptoms may make their appearance in housed animals.

*Johne's Disease* must be regarded as a specific and contagious

malady, caused by bacilli, which are believed to be invariably derived from a pre-existing case of the same disease. It has been produced in previously healthy animals by feeding and by inoculation with the bacilli. Under ordinary circumstances it is probably contracted by taking food or drinking water which has been contaminated by discharges from infected animals. In nature, infection by inoculation appears unlikely to commonly occur. Though it may be correctly assumed that grass and drinking-water are the more common media with which the germs are taken by animals, it must be borne in mind that these germs are often abundant in the fæces of the affected animals, and that anything polluted with their excrement may prove a means of communication.

Even among bacteria, *Johne's* bacillus is very minute, and is commonly described as *acid-fast*, by which term is implied that when stained by certain colouring agents used in the laboratory for demonstrating bacteria and differentiating one variety from others, the staining is not removed by subjecting the microbe to the action of strong solutions of acids. This characteristic is possessed by some other bacilli which are placed in what is called the "acid-fast group." This is notably the case with the bacilli of tuberculosis of men and other animals. Indeed, the intimate resemblance in size, general features, and in being acid-fast led its discoverers to the conclusion that *Johne's* Disease is a manifestation of tuberculosis, a view said to have been shared by Koch himself. As a matter of fact, the bacillus of *Johne's* Disease cannot by microscopic examination be distinguished from the tubercle bacillus, and at first the victims of this malady were added to the swollen category credited to tuberculosis, just as was done by writers in earlier times, who placed them under the head of "consumption." *Johne* and *Frothingham*, indeed, regarded the disease as the result of an infection with the avian tubercle bacillus, which causes tuberculosis in fowls, and this view was widely accepted. More recent investigation has shown that disease has not been produced in guinea-pigs, rabbits, and other animals highly susceptible to tuberculosis by inoculating them with *Johne's* bacillus. It is also found that while tubercle bacilli can be cultivated successfully outside the animal body on certain artificial media, *Johne's* bacillus will not grow on them, in fact up to a comparatively recent period all recorded attempts to grow *Johne's* bacillus, though made by a large number of eminent bacteriologists in different parts of the world, had signally failed. Now it has been demonstrated that on a specially prepared medium they grow freely. This marks a great advance in our knowledge, which, after further development, may

possibly be rendered of much practical value in dealing with the disease in our live stock. This discovery was made by Messrs. Twort, M.R.C.S., and Ingram, M.R.C.V.S., at the Brown Institution, London, in 1910, and is recorded in the Proceedings of the Royal Society, 1912. These investigators appear to have immediately set to work to render their discovery of practical utility by attempting to provide means for the detection of the disease in its earlier stages.

After being ingested by or inoculated into a susceptible animal, *Johne's* bacillus settles in the inner lining (mucous membrane) of the bowel, often both the small and large intestines, occasionally only one or the other being invaded. It is, however, only after a long period that the animal's health becomes appreciably affected, or, at least, that definite symptoms are manifested. Experiments in feeding calves with large quantities of cultures of the bacilli or of material from the bowel of an affected animal indicate that this period may extend to eight or twelve months, during the greater part of which the infected animal may be discharging broadcast seeds of the disease. This must be regarded as a point of considerable importance, for while it may be a comparatively easy task to suspect, remove and isolate an animal which gives the palpable symptoms of diarrhoea and wasting after its discharges have contaminated the place, and possibly infected its fellows, it is not possible with the means now at our disposal to avert the pollution which goes on in the earlier stages of the disease when no symptoms are manifest. It is indeed of extreme importance that we should be able to discover the unsuspected, but really dangerous, animal. It will be seen that where such animals remain undetected this disease will be very liable to recur, and that it may be easily introduced into fresh situations by purchased animals to all appearance in perfect health and free from danger. It is a risk to which every buyer of cattle is exposed, but when he purchases animals from situations in which the disease is known to exist, he, of course, exposes himself to a more dangerous hazard.

Post-mortem examination of animals affected with *Johne's* Disease reveals very little change to attract the attention of the lay observer. Beyond the general evidence of emaciation, changes appreciable to the expert are practically confined to the intestines and the glands connected with them, for *Johne's* bacilli, whether swallowed or injected into the veins or under the skin, appear to exert their influence in those situations almost exclusively. In the mucous lining of the bowel they multiply, some passing to the deeper parts of this membrane, others to the surface to mingle with the faeces

and be passed with them. The result is thickening with watery fluid which gives to the surface exposed, when the bowel is laid open, a swollen and corrugated appearance. The glands are usually a little enlarged, and when cut into present a watery appearance. Occasionally there is slight redness of the affected portion of intestine, but usually this colour is absent. Scrapings of the affected portion of the membrane usually contain the bacilli, and microscopic examination of this material is the method generally adopted for determining the existence of the disease. As would be expected in association with diarrhœa, the contents of the bowel are liquid. Often a few specimens of parasitic worms are present, a condition which may be taken as normal, for the intestine is the natural habitat of various species, which, in small numbers, are not the cause of appreciable harm. In some cases, the numbers are so considerable that it may become a question as to which are the more serious factors in the production of the illness; but this is really a matter of little concern now that we possess the power of discovering *Johne's bacillus*. It is highly probable that until recently many cases of *Johne's Disease* have been attributed to an attack of minute parasitic worms.

It has been stated that with only ordinary means at the disposal of the stock-owner, it is impossible for him to determine the existence of this disease in its earlier stages. It may not, however, be beyond the range of possibility that very careful observers, who have lived on farms given to the occurrence of *Johne's Disease*, and have had great experience, may, by noticing loss of bloom, certain indefinable conditions of the coat and skin, inadequate response to the amount of food consumed, etc., be led to suspect what may be coming on, and though in certain cases the suspicion may be confirmed by the appearance of diarrhœa and wasting, such cannot be accepted as yielding ground for anything more definite than suspicion, which may or may not be substantiated by after events.

The most pronounced symptoms exhibited by animals affected with *Johne's Disease*, after the period of apparent quiescence previously referred to, are profuse diarrhœa, and progressive, often rapid, emaciation, though the appetite usually remains and rumination goes on up to within a short time before death. Often the patient licks its coat, leaving impressions on the hair, which are usually regarded as signs of health and improving condition, the temperature usually remaining about normal. At pasture there is a tendency on the part of the animal to isolate itself. The course of the disease is generally, though not invariably, chronic, sometimes extending a whole year, during which diarrhœa is continued, the discharges becoming more



liquid and profuse, and loss of flesh more marked, until the animal has the appearance sometimes referred to as a "bag of bones." Some little time before death the power to stand is lost. These symptoms are almost identical with those attributable to minute parasitic worms found in the true stomach, giving rise to parasitic gastritis, a disease unfortunately too common in some parts of this country. Young cattle are perhaps more frequently the subjects of this parasitic affection, and usually several are affected at the same time, but to the ordinary observer, and, indeed, to the expert, most cases of parasitic gastritis and *Johne's Disease* are indistinguishable in the field. Occasionally there may be temporary cessation of the diarrhoea, especially after the subject of the latter is taken indoors, given dry food and astringent medicine. This apparent improvement, however, rarely lasts long, but almost invariably in the course of a few days this symptom returns, and the disease progresses to a fatal termination. Perhaps it would not be safe to say that recovery from *Johne's Disease* never takes place, as possibly some cases in which infection is slight may pass unobserved or unidentified and recover. It is, however, beyond doubt that, despite any medical treatment now known to us, after diarrhoea has set in the chances of recovery are very small. Prior to the discovery of *Johne's bacillus* and its identification as the cause of the disease, there were no means of diagnosing its existence during life. Now the positive diagnosis may sometimes be arrived at by microscopic examination and by discovery of the bacillus in the fæces or material which has been gently scraped with the finger-nail from the inner lining of the posterior bowel. This is far from a satisfactory procedure, as bacilli are not always demonstrable in these matters taken from animals suffering from the disease, while failure to find them is not conclusive evidence that the animals are not affected.

Reasons have been adduced for regarding the early discovery of the existence of this disease as a matter of great importance, especially when averting the contamination of pastures, etc., is in view. It may be added that, as for some time after becoming infected, animals do not materially decrease in flesh or value, and are not deemed unfit for food, much loss might be averted if such animals while in good condition were sold for slaughter. There is, perhaps, no more costly animal to keep than a subject of *Johne's Disease*, as the appetite being retained during its long course means the consumption of a large amount of food in addition to loss of the value of the animal itself. In view of this, attempts have been made to discover a material which, when applied in the manner of the mallein and tuberculin tests, for glanders and tuberculosis respectively, would

yield evidence of the existence of or freedom from *Johne's Disease*. The earlier prevailing idea that the malady was produced by the avian tubercle bacillus suggested inoculation with a "tuberculin" prepared from avian tubercle bacilli. It has been stated, and it is still held by some veterinary surgeons, that, if this material is injected into an animal infected with *Johne's bacillus*, the animal's temperature rises in a definite and distinctive manner. The evidence before us does not appear to indicate that this method is altogether satisfactory in practice, a conclusion in some degree supported by the fact that the bacillus found in cases of *Johne's Disease* has not been found to produce avian or other forms of tuberculosis, while a reaction may follow injection of this material into a tuberculous animal which may or may not be affected with *Johne's Disease*. Guided by the knowledge that diagnostic agents in common use, as mallein and tuberculin, are prepared from cultures of the bacilli, which severally cause glanders and tuberculosis, Messrs. Iwort and Ingram after discovering a means of cultivating *Johne's bacillus* on artificial media, set to work with commendable speed to find a diagnostic "vaccine." In a paper presented to the Royal Society in November, 1911, and published in B. Vol. lxxiv., 1912, of the Royal Society's Proceedings, these investigators announced the discovery of a material prepared from *Johne's bacillus*, which, after being injected under its skin, yields definite evidence as to whether an animal is affected with or free from *Johne's Disease* before gross symptoms are appreciable. They express their confidence in the reliability of this vaccine, and quote cases in support of this opinion. It may be that their process has not yet been sufficiently tested in the field to allow the formation of a decided opinion as to its efficacy in practice, but the success of their earlier work would appear to entitle this announcement to respectful consideration. It will have been observed from questions and replies in Parliament that aid has been sought from the Development Fund to enable this work to be carried farther, and the vaccine put to crucial test. We do not know the conditions on which such aid may be granted, but it is beyond question that our knowledge concerning *Johne's Disease* has been materially advanced by the discovery of means for cultivating its causal germ outside the animal body, and that the early application of this knowledge is highly desirable in the interests of agriculture. The first obstacle to progress, *i.e.*, inability to cultivate the bacillus artificially, has been overcome, and, as prognosticated by Sir John McFadyean, in his article announcing his identification of the disease in this country, the discovery might lead to the preparation of a diagnostic agent analogous to tuberculin which

would be of great service in providing means for preventing contamination by animals infected but, without the use of some such agent, undetectable.

The seriousness of this disease is realised by those who have to consider means of treatment and prevention. For the cure almost every known medicinal agent in general use has been persistently tried, and it is incumbent on me to state that, so far as I am able to judge, remedial treatment has been signally unsuccessful. Some astringents, tonics, and antiseptics, in conjunction with comfortable housing and appropriate dry, highly nutritious diet, appear in some instances to temporarily check the progress of the disease, but almost invariably diarrhoea returns, and death sooner or later ensues. Certain agents, however, appear to have a greater effect than others in staying the symptoms. It must be remembered that up to the present time curative treatment has not been adopted until the disease has been far advanced, and the bowel membrane and probably the glands invaded by the bacilli. It is within the range of possibility that if these or other drugs were used in the earlier stages of the disease, they might prove more effectual.

The occurrence of *Johne's Disease* in a perfectly healthy situation can only be prevented by not introducing into it infected animals or matters contaminated by their discharges. Inasmuch as means of detecting the disease in its early stages are not yet available, an assurance of freedom in this respect is not now attainable, and the best that can be done is to avoid, as far as possible, obtaining stock from herds and flocks in which cases of the malady are known to have occurred.

In considering the application of preventive measures in situations in which the disease exists, there can be no question as to the desirability of immediately isolating the animal yielding appreciable symptoms. Indeed, no animal affected with diarrhoea and emaciation should be allowed to run the risk of distributing the infective matter of this or other diseases of which these symptoms may be manifestations. On determining that an animal affected with diarrhoea is the subject of *Johne's Disease* it will prove economical to have it slaughtered at once, for not only is the prospect of recovery slight and the cost of keeping large, but while alive such an animal is the most potent factor in spreading and maintaining the disease. All manure made by infected animals or contaminated by their excrement should be destroyed or so disposed of that cattle and sheep should not have access thereto. Such manure should not be used as a top dressing for grass on which animals of those species are to graze. Little yet known about the life of *Johne's bacillus* in the

outer world, or the conditions there which may be favourable or be unfavourable to its existence. It has been ascertained that in the laboratory its vitality and power to induce the disease may, under special conditions, be retained for many months. There, however, appears to be some reason for thinking that on pastures, etc., this period is not a very long one, and that it does not multiply there. In the laboratory it refuses to grow under conditions in which bacteria are usually cultivated, and does so only in specially prepared media, and at a temperature of about 100 deg. F., which rarely obtains in this country. The known destructive effect of sunlight on some other acid-fast bacilli suggests a short life for such as are subjected to its influence. Indeed, if external conditions tended to conserve the life of the bacilli discharged by animals in the long course of *Johne's Disease*, the malady would be far more prevalent and destructive than it is. Be this as it may, after the germs of this disease have passed from the infected animal on to pasture, or into drinking water, artificial disinfection does not offer much hope of success. The application of lime and salt is frequently suggested as a means of disinfecting grass. Fortunately these agents often favourably affect the growth of pasture and, independent of any supposed disinfection, their use in many instances would prove economical, but it is to be feared that a simultaneous thorough disinfection and improvement of herbage are more than can reasonably be hoped for. Prevention and ultimate elimination of *Johne's Disease* can, in our opinion, only be effected by proper disposal of infected animals. If, after identification of one or more cases, there are grounds for thinking that a herd or flock is largely contaminated, it becomes a matter for consideration as to whether it would not prove economical to slaughter the whole and dispose of such carcasses as may be fit for food. It is under such circumstances that a means of diagnosing this disease in its early stages would prove particularly valuable. The Board of Agriculture is gathering information as to the prevalence and distribution of *Johne's Disease* in this country, and the Royal Agricultural Society is assisting to bear the expense of researches carried on at the Royal Veterinary College.

It has been seriously suggested that *Johne's Disease* should be scheduled under the Contagious Disease (Animals) Act. This will be a matter for consideration when our knowledge of the disease is extended, more especially in the direction of diagnosis during life. Under any circumstances, the act of selling an animal known to be infected, or to have run special risks of becoming so, without warning being given to the purchaser, would be highly immoral, and should be indictable.

## II.—AGRICULTURAL LABOURERS' COTTAGES.

*By J. L. Green.*

There seems to be a consensus of opinion that the housing of the agricultural labourers should be improved. Many have been the discussions and suggestions on the subject, always characterised by sympathy towards the labourers, if not by useful information, or by a knowledge of the difficulties which must be overcome before the object in view can be achieved. The subject, like some others, is a many-sided one, and it is somewhat unfortunate, perhaps, that in the great majority of the discussions and suggestions alluded to, it has not been considered "all round," so to speak, but rather from one or other particular point of view alone. The point of view taken has been usually confined to an ardent sympathy with the workers, often coloured by political bias; and yet if there is one subject more than another in connection with which this latter feature should be absent, surely it is that of housing the agricultural labourer.

A long and wide experience and much enquiry, combined with a strong sympathy with the agricultural community as a whole, have enabled me to gather a mass of information and to form opinions, some of which I hope will be found acceptable to the agricultural readers of this "Journal."

### WHERE THE HOUSING IS UNSATISFACTORY.

It is not proposed to describe the unsatisfactory conditions under which agricultural labourers sometimes live. The conditions, indeed, are admitted, and by none more so than by agriculturists themselves. Nevertheless, it may be stated at once that the housing accommodation is by no means bad or inferior everywhere—a fact which, we regret to say, is often forgotten or ignored.

For instance, on the estates of the larger owners, such as the Duke of Bedford, the Duke of Rutland, Lady Wantage, etc., the cottages are excellent in every way, and every care is, and has been for generations, taken to lead the way rather than to follow in a matter of this sort. It is when we come to the cottages owned by (a) some of the smaller men, having a few hundred or so acres; (b) speculative builders or speculative purchasers; or (c) various classes of village workers, or "retired" workers, that we find inferior and often very bad cottages.

With regard to (a), such owners have very often inherited encum-

bered properties, the income from which is quite insufficient for them to do, both for the labourers and for their farming tenants, what in happier circumstances they would be the first to accomplish. Moreover, the general conditions affecting land-owning have been, on the whole, against such owners for the last two or three generations. Those coming within the categories (b) and (c), however, have been ever the worst offenders in the matter of cottage properties. As a rule they have little sympathy with the labourers, or with improving their lot in life by means of better dwellings. In the last case (c) the owners seldom put the cottages into decent repair; and indeed, it may be asked, how can they do so when, with two or three or perhaps half-a-dozen or so houses of a rental value of £5 to £10 each, they usually have to eke out, after paying rates, a more or less precarious existence. If the housing of the agricultural labourer is to be improved, my impression is that the direction in which it can best be accomplished is in the provision of cottages in connection with the estates of the smaller agricultural land-owners. Some suggestions will be made later on with that end in view. With regard, however, to the provision of cottages not distinctly identified with agricultural estates, these in the main should be left, I think, to the ordinary commercial element, or, if that fails, to the Rural District Councils; and on this last point also some suggestions will be made in the course of this article.

#### REQUIREMENTS IN COTTAGE BUILDING.

It is desirable, first of all, to consider the requirements of cottages, and also a few other matters before we come to suggestions for the actual provision of the dwellings themselves.

I think it may be laid down that, in these days of increasing education and refinement, no cottage should be erected which has less than three bedrooms, and these should preferably be above the ground floor, with a fireplace in at least two of them. Each cottage, too, should have a good-sized garden—up to a tenth or an eighth of an acre. For out-buildings there should be a wash-house, an apartment for coals, and another for an earth closet. In exposed situations, such as on hill sides, a storey above the ground floor may, perhaps, be omitted with advantage, and that indeed is the common practice in the North of England and Scotland, the system answering very well. Wherever the circumstances favour it, existing cottages with only two bedrooms should have another bedroom added to them. No doubt in the case of aged couples three bedrooms are not required, but an extra room is never a

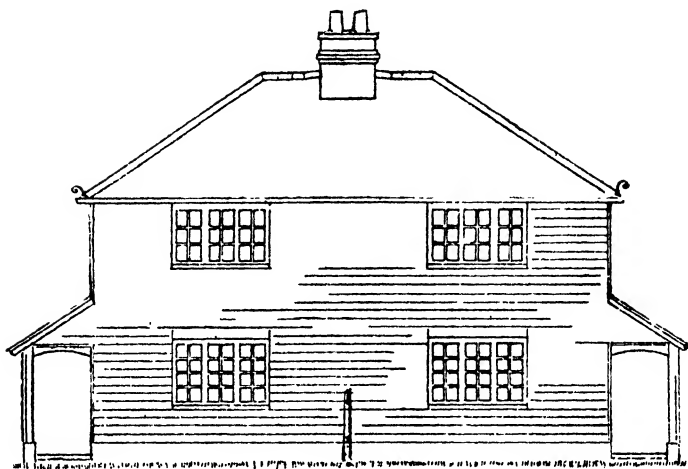


Fig. 1. FRONT VIEW OF A PAIR OF CHEAP COTTAGES ON  
SIR WALTER GILBEY'S ESTATE.

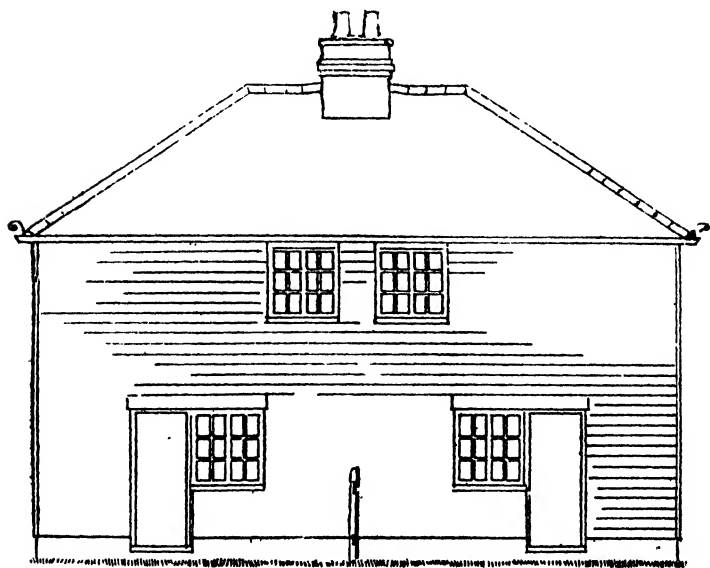


Fig. 2. BACK VIEW OF FIG. 1.

disadvantage, either in a cottage or in a mansion. In the illustrations (Fig. I. to IV.), of a pair of cottages erected on the estate of Sir Walter Gilbey, Bart., it will be noticed that the bedrooms are in size :—(1) 14ft. 6in. by 8ft. ; (2) 11ft. by 8ft. 6in. ; and (3) 6ft. by some 8ft. On the ground floor there should be two rooms, namely : a parlour and a living room ; and in the illustrations in question it will be seen that the sizes of such rooms are 14ft. 6in. by 10ft. 6in. and 11ft. 9in. by 8ft. In the living room is a convenient pantry, a sink, and a board erected by the side of the latter on which cups and saucers, etc., as washed, may be stood until dry. In the parlour there is a cupboard, always a great convenience.

Another type of cottage is shown in Figs. V., VI. and VII. In this case the “wash-house” is part of the scullery ; there being only

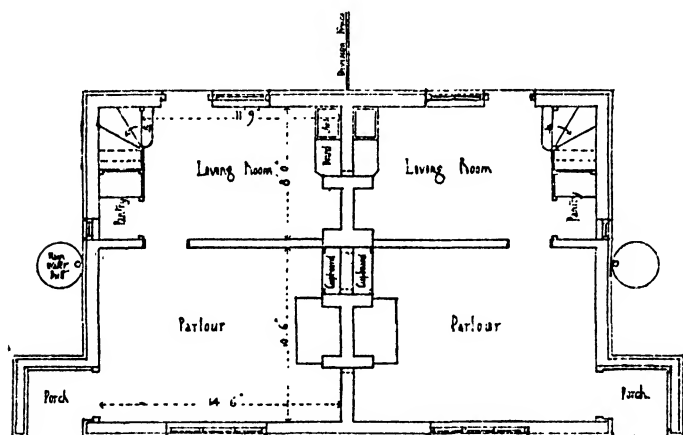


Fig. 3. - GROUND FLOOR OF FIG. 1.

one living room instead of two. The architect who drew up the plans for me states that practically every available inch of room is at the cottager's disposal ; and this is, of course, a great point, for in so many cottages, much room is wasted. The cost is estimated at well under £200.

#### MATERIALS AND COSTS.

No hard and fast rules can be laid down concerning the materials which should be used in cottage building. Although it has been said that the cost would be less if for exteriors, wood instead of brick, stone, etc., were employed, there is a doubt whether this would actually be so in every case ; at any rate, I have been



informed on very good authority that in some parts it costs more to use wood than to use either bricks or stone. On the general question of materials, however, there can be little doubt that wood should only be employed for exteriors as a last resort. It is said by those who have tried well-seasoned wood that it lasts well if it is reasonably cared for in the way of tarring or painting; but having inspected large numbers of cottages in which wood on brick foundations has been used, I certainly should not care to employ the material. Wood, sooner or later, attracts vermin, which are most difficult to get rid of, to mention no other disadvantages, and practically all the wooden cottages I have inspected have been affected in this way, not so much on or up the fronts or ends, as around the lintel

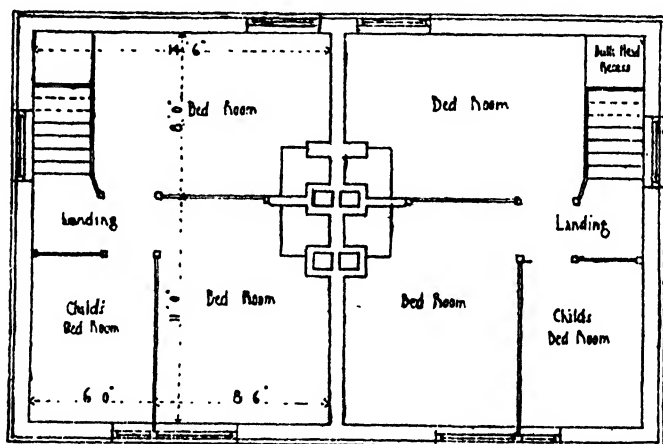


Fig. 4.- BEDROOM FLOOR OF FIG. 1.

posts and in corners generally. It is, moreover, particularly easy for wooden cottages to fall into a bad or a very indifferent state of repair; and there can be little doubt that if our country had been studded with such structures 50 or 60 years ago they would, bearing in mind the very severe periods through which agriculturists have passed, have suffered much more seriously through want of repair than the more solid structures common to-day in all parts of the country. The best plan, and it is a common sense one, is to use the material most convenient for the purpose (but I exclude wood in this case). This material may be brick, stone, concrete slabs, etc., with slates or tiles for the roofs. The cost of building is lessened by using local materials.

In the case of the cottages shown in Figs. I. to IV. the walls above

the brick footings, which latter are each nine inches above the ground, are nine inches thick, and built of sun-dried clay lumps, externally battened and covered with weather boarding, and plastered internally, the roofs being boarded and covered with Humber pantiles. In some parts, especially in Ireland, galvanized roofs have been adopted, but dwellings with such roofs are cold in winter, and there is a distinct and quite understandable prejudice against structures of such a character.

The cost of cottage building has increased enormously during the past 25 years or so. I wanted to put up a couple of three-bedroom cottages not long since. The village builder's quotation was £500 for the pair, which he offered afterwards to reduce to £475. There was no charge in this case for the land. Twenty-five years ago it would have been possible to put up the cottages for considerably less. The reason for the increased expense to-day is the extra charge for materials of every kind, and the extra charge also for labour. On the whole I am disposed to think that a fair estimate for a three-bedroom cottage would be £200. The cost may in places be from £20 to £30 less; but my experience is, that when one begins dabbling in cottage building, the estimates are almost always exceeded, as so many little things crop up which the owner himself, to say nothing of the builder, thinks it would be a good thing to have. I therefore place the cost of cottages at £200 where single ones are erected, or, where pairs are erected, a little less apiece; these figures including fencing and the sinking of a well. In Dorset I have found the cost to be from £350 to £380 a pair on one well-managed estate, the land being given in of course. The Duke of Bedford, many of whose cottages I have inspected, built cottages in Devonshire which cost £500, and even more a pair, although on his Bedfordshire property, the cost in many cases has been rather less. All the structures, of course, have three bedrooms and a good garden. The late Lord Mount Edgecumbe, in Devonshire, owing to having stone in the neighbourhood, thus avoiding much cost in cartage, was able, he informed me, to build at from £125 to £150 apiece, where a couple of houses were erected. The cottages built by Sir Walter Gilbey (Figs. I. to IV.), were £230 a pair, exclusive of £20, the value of the land, which land is half an acre for the pair. Cottages which I inspected on the estate of the late Lord Wantage, in Berkshire, cost from £390 to £460 a pair. In most of the foregoing cases the work was done by the estate workmen. In Ireland, where the cottages are mostly without an upper storey, and are not nearly so substantial as the foregoing, the cost in the case of a certain Union in which 260 were erected by the Rural District

Council averaged £173 apiece; and, of these, 151 were provided with an acre of land each, the remainder having not less than half an acre each.

#### RENT, RATES AND TENURE.

At the present rate of wages, it is impossible for agricultural labourers to pay higher rents than they now do (where they pay rents at all); and, unless farmers obtain higher prices or landlords can forego a certain proportion of their farm rents, it is difficult to see how increased wages can, speaking generally, be paid. The money wages paid to agricultural labourers are, of course, seldom

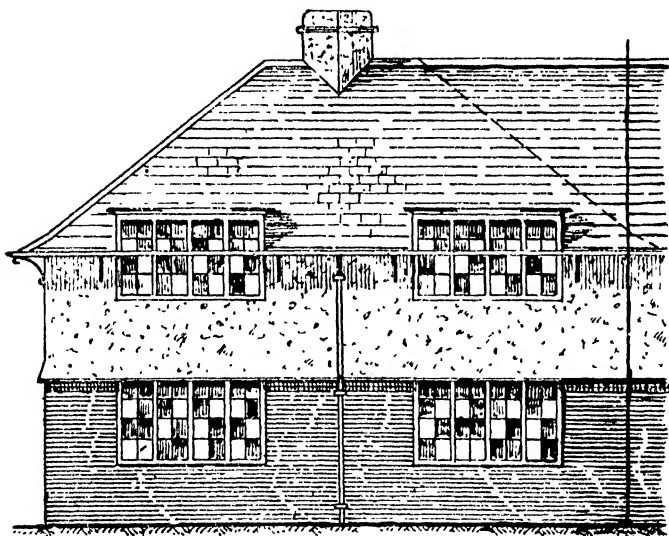


Fig. 5--PAIR OF CHEAP COTTAGES WITH ONE LIVING ROOM.

a complete guide to the actual receipts by them, as it is often the case that they also receive benefits or perquisites in kind, apart from financial extras at haysel and harvest.

The rents of cottages vary from 1s. to about 1s. 6d. a week, and very often the cottages are rent free. Assuming, however, that 1s. 6d. is the average rent—and that is as near the fact as anything—then the problem is: how are cottages to be erected, the rent of which shall not exceed this charge, or 2s. a week where a really good-sized garden adjoins the cottage? I am convinced that with this latter advantage the labourer will, usually, readily pay 2s.

At this point, I may say that I think it would be a very good thing

indeed if all rents could be paid direct to the owners instead of to the farming tenants. I am well aware of the difficulties which are alleged against this suggested practice. Nevertheless, most of the larger owners adopt it, and we may therefore regard the difficulties as not being insuperable. It tends to make the labourers more self-respecting, and it diminishes friction between employer and

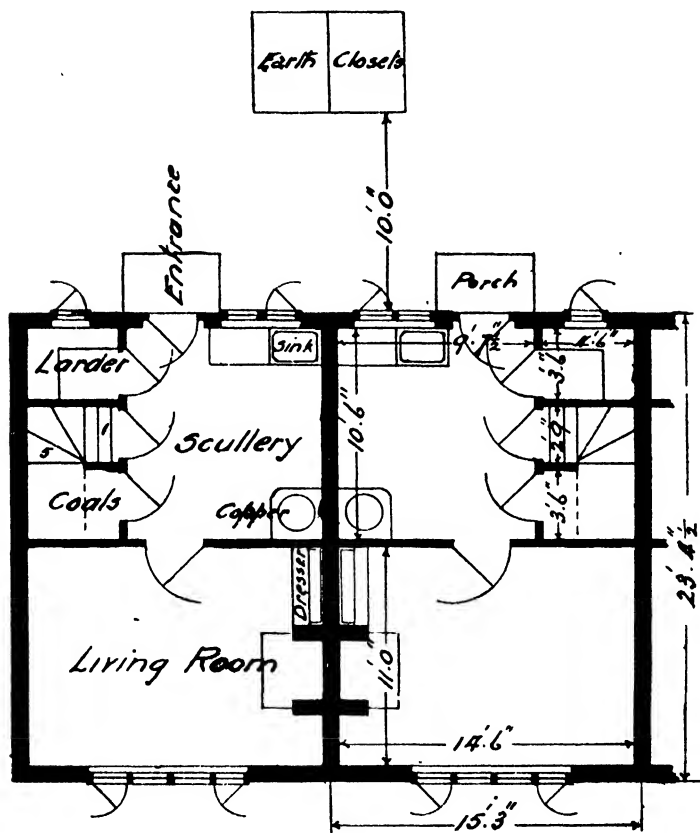


Fig. 6. --GROUND FLOOR OF FIG. 5.

employed. Cottages, too, would probably get repaired more often if the labourers paid their rent direct to the owners, as it is not unknown for owners under the present system to be unaware that cottages on their estates are defective in this respect.

Then, again, it is much to be desired that all rural labourers should pay the rates for the cottages they occupy. This would help to cul-

tivate a sense of self-respect and responsibility, and in these days of increasing local burdens, it seems to me to be a reform which ought no longer to be delayed. It is a reform which could very well be adopted in the rural districts (unfortunately it is scarcely applicable to large urban centres, where "moonlight flitting" is not unknown, and where rents would remain, in too many cases, unpaid). The practice of compounding for the rates on rural cottages, has, of course its advantages from an owner's point of view, and the rating authorities also usually prefer it. Nevertheless, I am strongly of opinion it is not the best practice.

On the question of tenure, apart from what has been said about paying the rents direct to the owners, I think that agricultural labourers ought not to be subject to the possibility of a week's notice to turn out at any time of the year. To obviate this hardship, a month's notice should be given. A week's notice is bad enough in a large town, but in the country districts, with an increasing scarcity of suitable cottages, it is indefensible. It is, no doubt, an awkward, and might be a serious, thing for a farmer to have a man about his farm who might take it into his head before his month was up to do all sorts of mischief to the live or dead stock, etc., and that is the argument which is commonly urged against the suggestion; but a man inclined to mischief at all, can do quite enough in a week, and the argument, therefore, is not sufficiently strong to deserve serious attention. It is undoubtedly an inconvenience to have a workman longer than is necessary about one's farm, but all the same, this scarcely justifies a week's notice to quit. We are aware it is not always taken advantage of by employers, whose care and attention for their workmen are indeed much more in their thoughts than that of causing their men trouble and inconvenience. It would be, however, a right and proper thing to let it be known that a month's notice instead of a week would be given so far as the actual quitting of cottages is concerned.

The whole question of cottage rents and tenure, as between workman and master, is a delicate and a difficult one; as everyone knows who has had practically to consider it. There are two sides on which arguments of great weight can be adduced regarding what the respective positions of those concerned are or should be; and, whilst one can thoroughly appreciate the attitude of the tenant farmer, who says not unnaturally that he must have proper "control" over his workmen,—in the consideration of which the control of the cottage is highly important—I think, if the suggestions I have ventured to make could gradually be adopted, it would be well ultimately for all concerned.

## LOCAL AND MODEL BYE-LAWS.

A great deal has been, and still is, said about the local bye-laws in force in particular districts. These, it is alleged, prevent the erection of cheaper cottages.

Some few years ago I enquired in each county as to the condition of the cottages of the agricultural labourers, and as to the reason for the non-erection of fresh cottages. I found that local bye-laws, where they existed, were undoubtedly far more applicable to the erection of small dwellings in urban centres than to those in rural

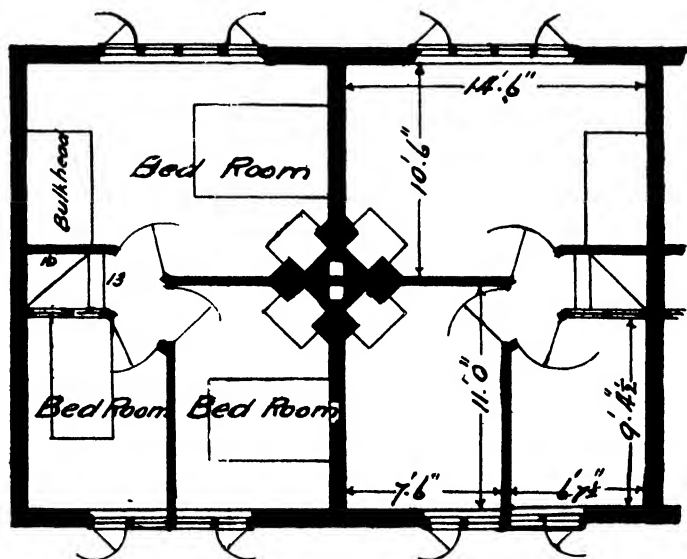


Fig. 7.—BEDROOM FLOOR OF FIG. 5.

areas. I also found these local bye-laws were based on the "model" bye-laws of the Local Government Board. I ventured, in a volume afterwards published, to criticise such model bye-laws, and to indicate in what respect they ought to be altered. They were subsequently very radically altered by Mr. Walter Long, who was then President of the Board; and now there is absolutely nothing in the "model" bye-laws which need prevent the erection of cottages of any material the owner prefers, and which local authorities will permit to be used. The chief subjects of contention are the kind of materials for the outside structure, the strength of the walls, and the space and ventilation of the rooms. An owner may, however, now build with practically any material he likes.

Moreover, if the "local" bye-laws stand in his way, then under Section 44 of the Housing and Town Planning, etc., Act, 1909, (a section due to the Rural Housing Association) the Local Government Board may itself call upon the local authority to alter its bye-laws; and if such authority neglects or refuses to do so, the Board may revoke the local bye-laws, and put in their place such new ones as the said Board thinks will meet the case.

I venture to hope that these facts may be thoroughly appreciated by readers interested in the cottage question, and especially by Rural District Councils, as there is a very general ignorance regarding the difficulties alleged to be due to the "model" and to "local" bye-laws.

#### FINANCIAL.

After all is said, the main difficulty connected with cottage building is a financial one; and especially is this a difficulty with the small landlords to whom reference has been made in the early part of this article.

On this matter of finance, it is well to be particularly explicit. I shall, therefore, refer:—(a) To commercial cottages, by which I mean cottages for which the agricultural labourers might pay a commercial rent; (b) to the Irish precedent for the erection of rural cottages; and (c) to a modification of the Irish precedent.

##### (a) THE COMMERCIAL COTTAGE.

If cottages are to be erected at commercial rents, the following method, which I suggested some years ago, is, I still think, probably the best to achieve the end in view. I should add, however, that since then I have seen reason to alter my views, so far, at any rate, as the smaller agricultural estate owners are concerned, and I shall further refer to this under sub-heading "c."

As an example, we will suppose that it costs £200 to erect a cottage. A farmer pays, say, £400 a year for his farm, on which he already has five cottages, for each of which he receives 1s. 6d. a week from his labourers (or, in all £19 10s. 0d. a year). These cottages, not being at all satisfactory, the landowner borrows £1,000 to enable him to put up five new ones at £200 each. The amount required to repay £200 in  $68\frac{1}{2}$  years by means of a  $3\frac{1}{4}$  per cent. annuity ( $2\frac{3}{4}$  per cent. interest, and 10s. per cent. for sinking fund) is £6 10s. 0d. per cottage; and we may reasonably assume a further £1 10s. 0d. as being required for repairs, rates, and insurance (or in all £8 per annum per cottage).

The £8 a year is, say, 3s. 1d. a week. The landlord would be required to allow his farming tenant this amount (or £40 a year for the five cottages), out of the rent he (the landlord) received ; and the tenant would be required to add the amount on to the labourers' wages, so that the commercial rent could be paid to the landowner. The landowner could not, of course, expect the farming tenant to forego the £19 10s. 0d. a year which that tenant received from the labourers for the previous cottages ; so he would have to make a further allowance to the farmer of £19 10s. 0d. a year, making a total annual allowance of £59 10s. 0d. to the farmer. How many small land-



Fig. 8.—AN IRISH COTTAGE: FRONT VIEW.  
(There is no Upper Storey.)

lords are able to make this sacrifice ? I venture to think that they would be unable to make it in more than four or five per cent. of the cases where cottages are required, or without further seriously crippling themselves at a time when the burdens on those owning land are already almost intolerable.

If the farmer had received no rent at all from the labourers for the five discarded cottages, then, of course, the sacrifice on the part of the owner would be reduced by the £19 10s. 0d. a year, thus making it £40 instead of £59 10s. 0d. ; but one fails to see how the position of the small owners would, in any sense, be materially relieved.



*(b) THE IRISH PRECEDENT.*

Lately I travelled through Ireland with a party of British farmers (most of them from the west and south-west of England), and we were all very much struck with the enormous number of new cottages which, in recent years, have been erected on the farm-lands north, south, east and west, and right through the Midlands of Ireland. These cottages—the most common type of which will be seen in illustrations, Figs. VIII. to XI.—have everywhere proved of great advantage to the working-men, and there can be no question that the people inhabiting them are improving in methods of tidiness, decency, and so on.

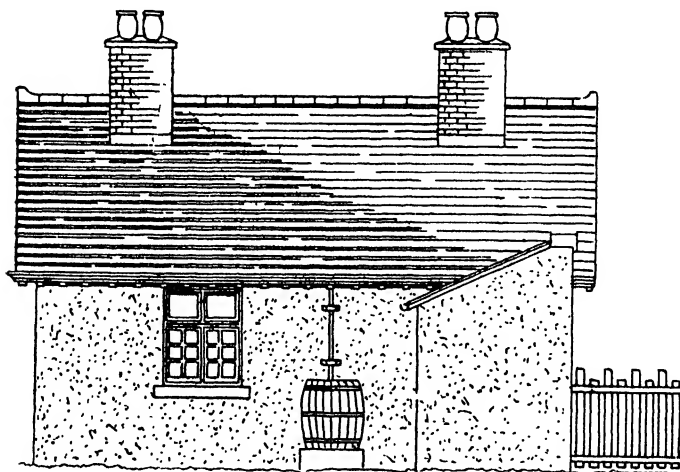


Fig. 9.—AN IRISH COTTAGE: BACK VIEW OF FIG. 8.

What is the system under which such Irish cottages are erected? Since the 1st of November, 1906, loans have been obtained by Rural District Councils from the Irish Land Commission, on the recommendation of the Local Government Board for Ireland, for the purpose of providing cottages and allotments under the various Labourers' (Ireland) Acts. Prior to that date, loans were obtainable by Rural District Councils from the Commissioners of Public Work, in the same way as they obtained loans under the Public Health Acts. The total amount of loans sanctioned under the various Labourers' (Ireland) Acts is now £7,906,273, of which, at the time of my recent visit to Ireland, there had been actually issued a sum of £6,951,833. The latest returns as to the number of cottages

erected show that some 39,241 have been erected, whilst thousands more are in course of erection. No less than 36 per cent. of the annual charge in respect of the re-payment of each loan obtained from the Land Commission is borne by the Imperial Exchequer; and is, therefore, a free grant for cottage building to the Irish Rural District Councils. The loans are granted for a period of  $68\frac{1}{2}$  years, repayable by an annuity covering principal and interest at £3 5s. 0d. per cent, per annum. The maximum garden or allotment land attached to a cottage is one statute acre. A very large propor-

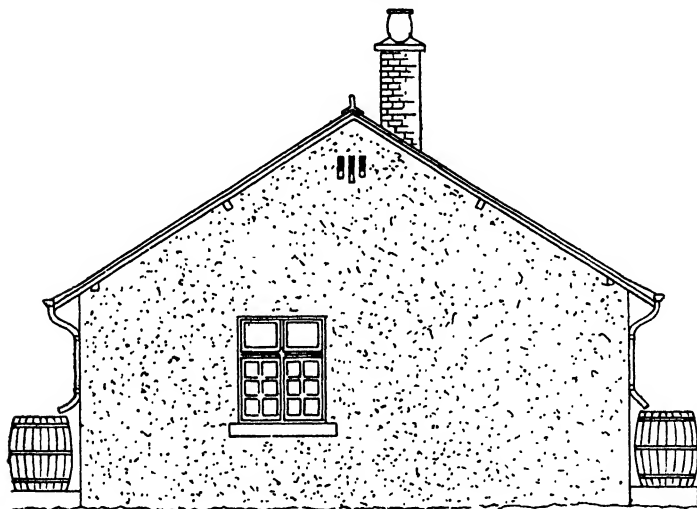


Fig. 10. AN IRISH COTTAGE: END VIEW OF FIG. 8.

tion of the cottages have the maximum; and I saw none whatever that had less than from a quarter to half an acre.

The one drawback to the Irish precedent—and it is a grievous one—is that farmers were complaining in all parts of Ireland of the rates being called upon to bear the numerous expenses—i.e., the actual losses (and these, I regret to say, average something like 5d. in the £ on the rateable value)—not met by the cottage rents or by the annuity. I am glad to say, however, that the rates of the cottages are borne by the cottagers, these rates averaging about 10s. per annum. The average wages of Irish labourers are only 10s. 11d. a week; and this no doubt accounts for the fact that the rents charged to the cottage tenants, who, we repeat, usually have from half an acre to an acre of land, are mostly about 1s. to 1s. 3d. a week, a few being much less.

## (c) MODIFICATION OF THE IRISH PRECEDENT.

The best way out of the financial difficulty as regards the erection of cottages for the farm labourers of England would be a modification of the Irish precedent just alluded to. I am not in favour of permitting the Rural District Councils, or any other local authorities in England, to erect cottages for the agricultural labourers except as a last resort; and therefore I would modify the Irish precedent by first of all ascertaining if owners of agricultural land would, given reasonable financial backing as in Ireland, erect the cottages, insure them, and keep them in repair. There is reason to believe owners would accept this duty, and I cannot help feeling that it would certainly be in the best interests of the labourers.

There is a Bill before Parliament which seeks to carry out this idea. It was brought in recently by Mr. Beville Stanier, the Member for North Shropshire—an agricultural landowner of great experience and wide sympathies with all in any way connected with the land. Under this Bill, the landlord would be advanced the £200 (to keep to that figure), and the amount would be repaid in 68½ years by the same annuity of £6 10s. 0d. as in Ireland. As, however, the National finances are not altogether satisfactory at the present time, the Bill permits such a higher rate of interest to be charged as will secure the Treasury against loss. I shall therefore assume that the annuity would be 3½ per cent. (i.e. 3 per cent. for interest, and ½ per cent. for sinking fund purposes). This would be £7 a year, instead of £6 10s. 0d. The landlord would supply the land free, keep the cottage in repair, insure it, and charge not more than 2s. a week rent; a garden not exceeding an eighth of an acre being also provided. British labourers would readily pay 2s. a week for a good cottage with a garden of this description. Assuming, therefore, the rent to be 2s. a week, then under the Bill, this is to go towards the repayment of the annuity; the £1 for sinking fund is payable by the owner; and the balance, 16s., is to be a free grant from the Development Fund, or, if that stops, which is not very likely, from the Consolidated Fund.

From extensive inquiries I have found in England that the smaller owners—especially of encumbered properties—are, through no fault of their own, simply not in the financial position to spend £500 or £1,000 in the erection of cottages; yet it is precisely these gentlemen who are deeply interested in the subject, and who would, no doubt, be willing to take advantage of a reasonable offer such as that under notice, were it made to them. As they would give the land and keep the cottage in repair, etc., it would be clearly a better

financial transaction than if the Rural District Councils were to take the matter in hand. Such councils would have to buy the land to start with. This and the subsequent cost of erection and of keeping the cottage properties in repair, under control, and insured, would mean a permanent charge on the ratepayers or increased rents (or both); which might very well be avoided, and avoided in the interests of the ratepayers themselves and of the agricultural labourers. As regards the latter, moreover, no District Council can put up cottages at rents of less than 2s. 6d. or more a week without entailing a charge upon the rates; a fact which is very clearly

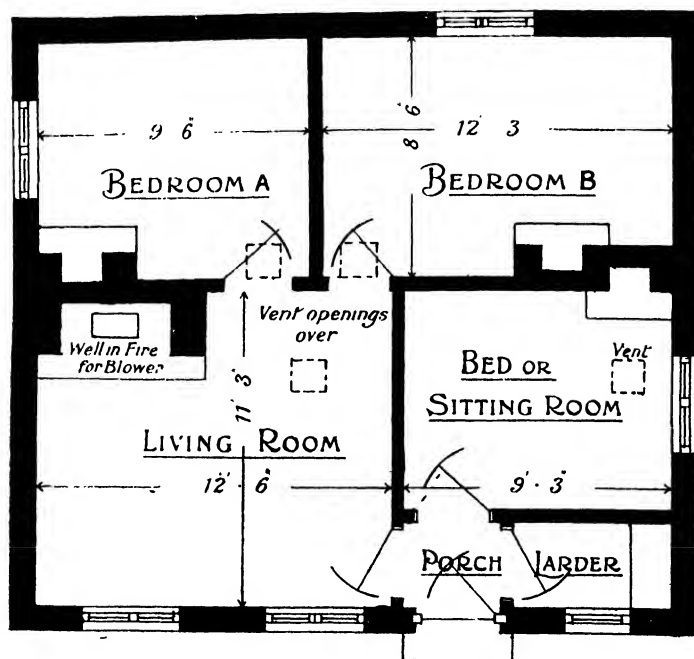


Fig. 11. -AN IRISH COTTAGE: GROUND FLOOR OF FIG. 8.  
(There is no Upper Storey.)

demonstrated by the recent Parliamentary Return, No. 293, issued by Mr. John Burns. In Montacute, Somerset, the rents are 4s. a week, and there is also an estimated charge on the rates at present of £2 a year, but which will probably be more. In St. German's Union, Cornwall, the "approximate" rents are 3s. 3d. and 3s. 4d. a week for two parishes; and the estimated annual deficiency for the five cottages erected, or to be erected, is no less than £12! In none of

the cottages in the places just mentioned is a parlour provided. The great majority of the rents in the Return range from 3s. 9d. to 6s. 4d. a week : which labourers cannot possibly pay.

In the 68½ years alluded to, the labourers successively occupying a three bedroomed cottage built by an owner under the Bill would pay in rent £356 4s. 0d. ; whereas they would for a similar cottage pay £445 5s. 0d. if it were built by a Rural District Council, assuming (which is quite doubtful) that the cottage could be let at a rent of 2s. 6d. a week.

The owner who built under the Bill would have the cottage after 68½ years ; but, if he had put his contribution of £1 a year out in another direction at, say, only 3½% compound interest, he would receive, at the end of the period named, £218, —to say nothing of the saving he would also effect in the matter of repairs and insurance. The State, in fact, would make an excellent financial bargain, and achieve a great social object.

If, however, owners are unable or unwilling to bring themselves under the operation of the Bill, then the fullest and swiftest possible powers are given to the local authorities to erect cottages ; but these authorities should only be set to work as a last resort.

The Bill, too, is practically complete in itself, and therefore the great disadvantages of a Bill by reference are obviated. It is my firm conviction that, as a practical proposal and one raising no class friction, it is much the best which has yet been before the public for rural areas ; and that—with any alterations in detail of a reasonable character consistent with its principle—it might very well be passed into law, in the interests alike of the labourers, of Agriculture, and of the State.

### III—FOUR WHEAT PESTS.

*By Harold Bastin.*

Those who have critically examined a field of standing corn, a little before the time of harvest, know that the individual wheat plants are by no means uniform in appearance. Many rise up boldly with full ears slightly deflected by the weight of the grain. The straw is long and straight, strong by reason of its silicious cuticle, but resilient to withstand the buffet of the passing breeze. There are other plants, however, which have plainly suffered defeat, partial or complete, in the battle of life (Fig. 1). Most noticeable, perhaps, are those which have been rifled by sparrows—the ears mere husks

from which the grain has been carefully extracted. Again, we see plants, more or less numerous as the case may be, which are manifestly far below the average in fruitfulness. These may be the victims of inherent defect in the seed from which they sprang, or they may suffer from some early impediment to their growth. In not a few instances the failure has been influenced by causes so obscure that they completely elude scientific inquiry. But a percentage of the plants are almost sure to present peculiarities which indicate the presence of an insect pest.

#### THE RIBBON-FOOTED CORN-FLY.

When a given species of insect attacks a plant, it usually proceeds instinctively along definite lines. The result is a deformity so characteristic that the injured plant may be detected, and its enemy named, merely by a casual inspection. This point is well shown in the case of a wheat plant (Fig. 2) infested by the ribbon-footed corn-fly (*Chlorops tæniopus*), an insect which also attacks barley. The ear, even at harvest, remains wholly or in part within the sheathing leaf owing to the attack of the larva or grub. *Chlorops tæniopus* is a small, two-winged fly (Fig. 3-1). When examined through an ordinary pocket lens, it is seen to have three bold black lines down the thorax, and four transverse stripes on the abdomen. The average length of the insect is about one-sixth of an inch; but the female is invariably larger than the male. Moreover, while the male is of a light yellow hue, the female is somewhat greener in colour. The eyes in both sexes are green and comparatively large.

The fly appears first in May, and lays its eggs upon the leaves which serve as a sheath for the forming ear. The minute grub, when it hatches, burrows through the leaves to the base of the developing ear, and here feeds upon its juices, checking its growth, and tending to produce a stunted or gouty condition of the whole plant. For this reason the pest is often called the "gout fly." Ultimately, the grub makes a long groove, or furrow, down the stem from the base of the ear almost to the first joint, and there assumes the pupa state. The adult fly emerges about a fortnight later. The grub is pure white, but the puparium (or case in which the pupa reposes) is bright chestnut in colour.

Although only one grub is found in each stem, the injury wrought by it is often very serious, especially in seasons unfavourable to the growth of the plant. The worst recorded attack of the pest in this country was in 1893, when irreparable damage was done to barley, mainly because the crops were retarded by extreme drought, and

were thus unable to "grow away" from the infestation. Many farmers turned sheep into the fields, as the plants were so much injured that they could not possibly recover and yield a crop.

There are at least two generations of the ribbon-footed corn-fly in the course of twelve months, but for many years little or nothing was known respecting the habits of the winter brood. Indeed, the fact that autumn sown crops are attacked in this country was not definitely established until the year 1890, although in Germany, Holland and France the pest had long been observed to infest corn plants in winter. We now know that the flies which appear in the autumn lay their eggs upon grasses, as well as upon early-sown wheat and winter barley. This suggests the desirability of keeping land free from couch and other grasses, which should be cut and burnt in the late autumn or in winter. Moreover, winter wheat and barley should be sown, whenever this can be managed, at some distance from fields that have been infested.

It is advisable not to sow so early in autumn as to enable the flies of the second generation (which usually appear towards the end of August and continue into September) to lay eggs on the plants. On the other hand, early sowing in the spring has been found of the greatest benefit, as the plants become well established before the first flies of the season appear. The following facts, cited by Mr. F. V. Theobald, are significant : —

Sown in March, practically free from injury ;

Sown April 6th, 2 per cent. affected ;

Sown May 3rd, 20 per cent. affected.

It always seems to be late-sown barley that is damaged : while the attack of the pest is usually worse in wet, low-lying parts of fields, and at the borders of ditches and furrows. When the presence of the ribbon-footed corn-fly is noticed early in the season, dressings of stimulating manure have been found to push the plants on, and so save a part of each ear.

#### THE CORN SAW-FLY.

Another insect whose presence may be readily detected as the time of harvest approaches is the corn sawfly (*Cephus pygmaeus*) (Fig. 3-2). The ears of infested plants have a bleached appearance, and are usually more erect than their neighbours, as the grain, being imperfectly developed, is consequently deficient in weight. Attacked plants are eventually laid low, owing to the larva partly cutting through the straw from within, just above the root. These fallen plants may sometimes be seen in numbers as autumn approaches.

The corn sawfly is a small, wasp-like insect, with four membranous wings. In June, the female inserts a single egg a little below the first joint of the plant, and when the larva or grub hatches it commences to eat its way upward—feeding upon the interior of the straw and thus sapping the plant's vitality. It frequently bores through all the joints; but when full-fed it invariably makes its way down again to the bottom of the stem, where it spins its cocoon, having first felled the straw in the manner which has already been noticed. It lies unchanged in its cocoon until the spring, when it is transformed to the pupa, and subsequently emerges as a perfect insect during the early summer, in time to deposit its eggs in the young growing corn.

In this country, the corn sawfly has never been reported as a very serious pest, but on the Continent it has been known to work very great havoc. For this reason its presence among our crops should not be ignored. When the signs of its ravages are detected, even on a small scale, it is a wise precaution to root up and burn the stubble. In this way the larvæ, lying in their cocoons, will be destroyed.

#### THE HESSIAN FLY.

Although the Hessian fly (*Cecidomyia destructor*) (Fig. 4) is now thought to be somewhat rare in Great Britain, there is reason for thinking that this pest is far more widely distributed than is generally supposed. Its presence, even in limited numbers, should be treated with the utmost suspicion, for in certain seasons it has proved a most destructive pest on both sides of the Atlantic. Its name is derived from the idea that it was introduced into America with fodder by the Hessian troops.

Wheat, barley and rye are all attacked by this insect, and its presence in a crop is revealed by the condition of the infested plants. These, being weakened by loss of sap, look as though they had been severely weather-beaten. The stems are usually "elbowed" just above the place where the larva or maggot is located, the whole plant lies prone, while the ear (Fig. 5) is impoverished and very small.

The Hessian fly is a very small, two-winged insect resembling a gnat. During May and June it lays its eggs in rows upon the upper surface of the young leaves of the cereals. The maggots, which hatch in a few days, disperse and make their way between the leaf sheath and the stem of the plants—a favourite position being just above the first or second joint, or knot, of the stem (Fig. 6). Here they feed chiefly upon the rising sap. Often only one maggot is found in a plant, but there may be two or more. When full-grown,



each maggot pupates at the place of feeding. The puparium is brown in colour, and resembles a flax seed in shape and size. Its presence is usually made manifest by the "elbow" in the straw, but the writer has found puparia above joints which did not exhibit this characteristic symptom.

Following an attack of the Hessian fly, many puparia will be left in the soil after harvest, while many more will be contained in the siftings and refuse from threshing. The latter should, therefore, be burnt; and if the stubble is not likewise destroyed, it should at least be deeply ploughed under so that the flies from the buried puparia will not be able to reach the surface.

#### THE WHEAT MIDGE.

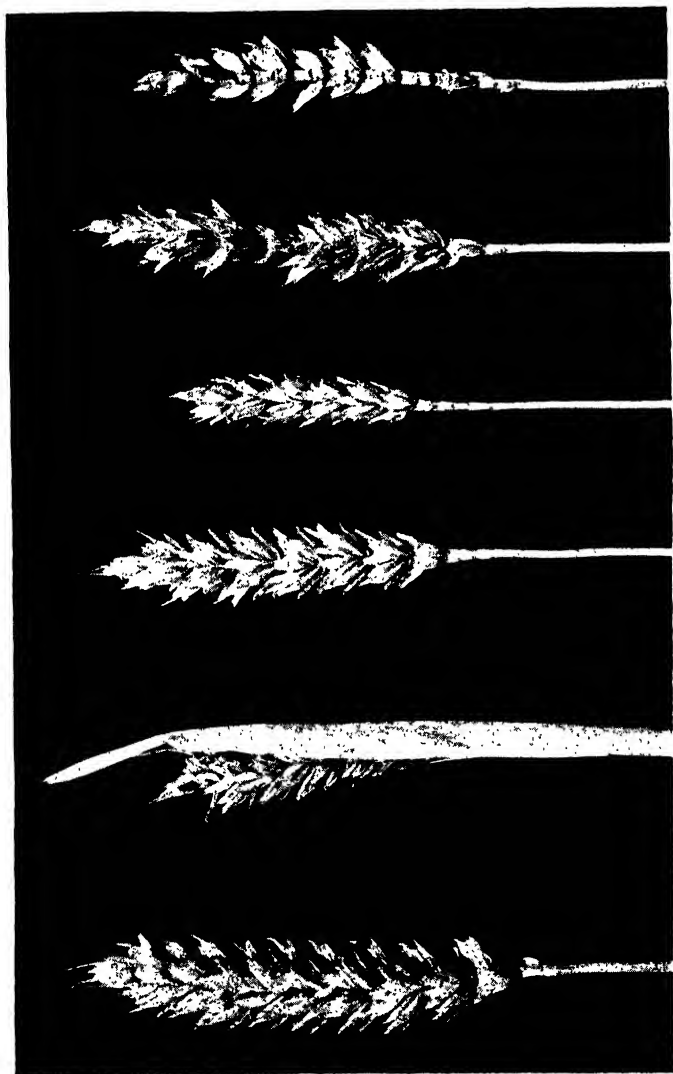
The fourth pest to which I shall call attention is known as the wheat midge or red maggot (*Cecidomyia tritici*). This again is a very small, gnat-like insect which is destructive on both sides of the Atlantic. Despite its diminutive size, it is sometimes the cause of very serious loss—amounting, at times, to 50 per cent. of the crop. Ears which have been attacked may be known in the autumn by tell-tale gaps in their continuity, showing where some of the individual grains have been destroyed in the husks.

The female wheat midge first appears at the end of May, or early in June, and lays her minute, transparent eggs on the blossom of the wheat. From fifteen to thirty eggs are said to be laid. Miss Ormerod observed that the egg-laying midges are "busiest at work about 8 o'clock in the evening. In the morning they may be found resting on the lower part of the culm of the wheat, with their heads downwards, flying about, however, in great numbers near the ground when the stems are shaken."

The larvæ or maggots hatch in from nine to twelve days, and feed on the germ or some part of the soft grain. Their presence may often be detected by a discolouring of the husk; and when the latter is opened the minute maggots—sometimes to the number of thirty—will be found within. The newly-hatched maggot, like the egg, is almost transparent, but it gradually turns yellow, and eventually assumes the characteristic orange-red colour. Some of the full-fed larvæ fall to the ground, and bury themselves in the soil before they assume the pupa state; but others remain in the ear, and are carried with the crop. The pupæ are reddish in colour, and are enclosed in filmy cases or puparia.

When dealing with this pest it is important to bear in mind that it attacks rye, oats and barley in addition to wheat, as well as

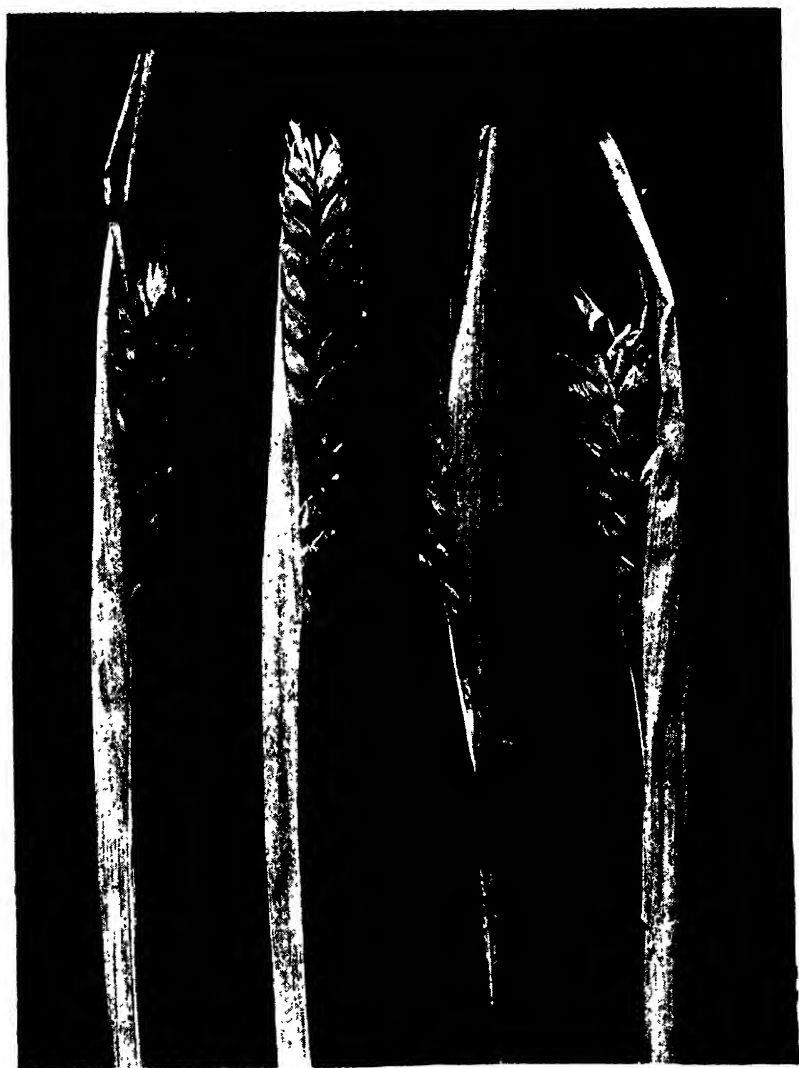
Fig. 1.



EARS OF WHEAT. Normal ear to left, and (from left to right) ears from plants which have been attacked by the Ribbon-footed Corn-fly, the Corn Sawfly, the Hessian fly and the Wheat Midge. To the right an ear which has been rifled by Sparrows.



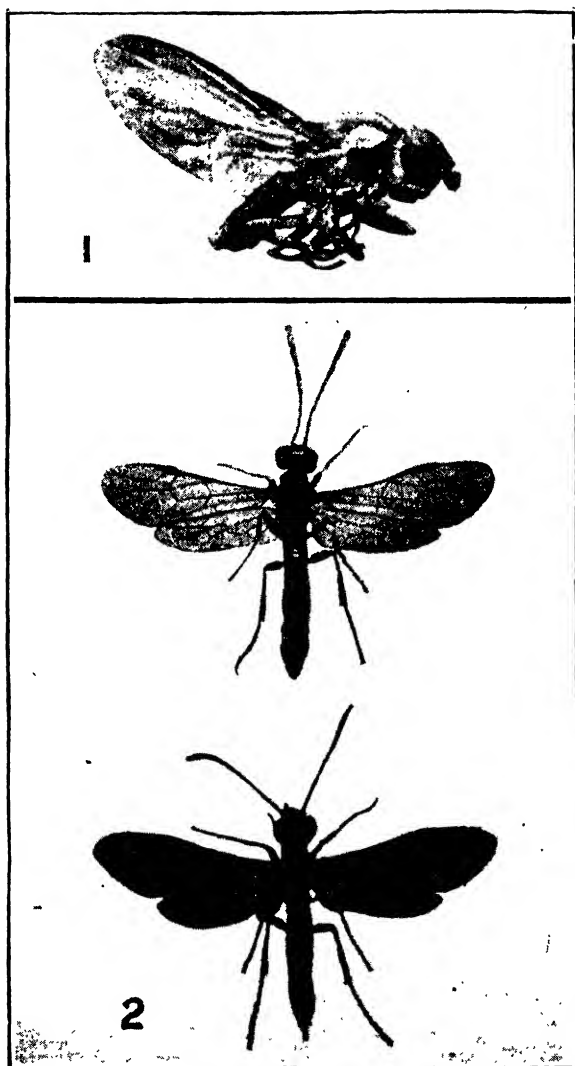
Fig. 2.



Ears of Wheat showing characteristic damage by the  
Ribbon-footed Corn-fly.



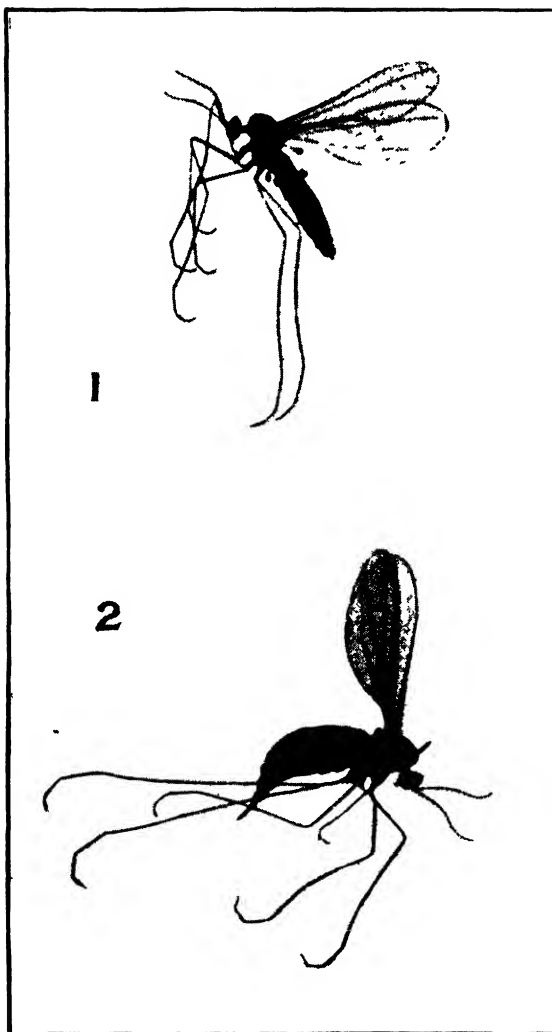
Fig. 3.



1. — *Chlorops tæniopus*.  
2. — *Cephus pygmæus*, male (upper figure) and female.  
(All considerably magnified.)



Fig. 4.



*Cecidomyia destructor*.  
(1.—Male. 2.—Female.)  
(Greatly magnified.)





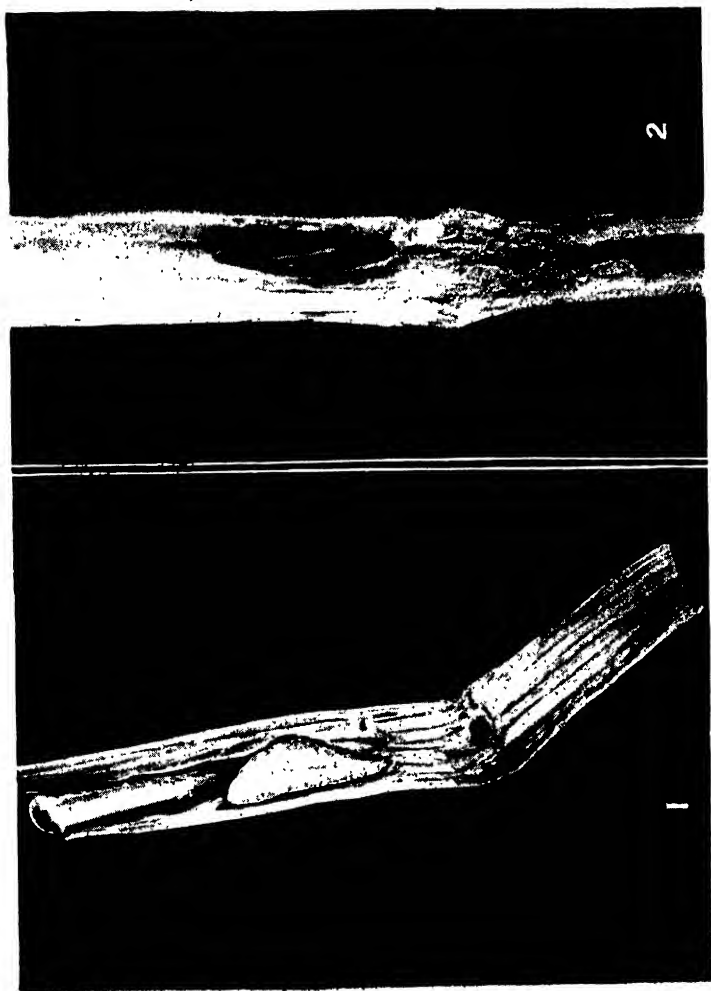
Fig. 5.



Normal wheat ears (left) compared with ears from plants attacked by the Hessian fly.



Fig. 6.



HESSIAN FLY: (1) larva or maggot, and (2) puparium in wheat stems.  
(Greatly magnified.)



couch and other grasses. Indeed, some writers assert that the midges first lay their eggs on couch, meadow foxtail, wild oat, and other grasses, and that the cereals are subsequently invaded from these sources. But this statement seems open to question, although there are probably two, possibly three, generations of the pest in the course of the year. The obvious preventive measures include the destruction near cornfields of wild grasses. Deep ploughing after a bad attack is also very important, as by this means the pupæ which harbour in the soil will be killed, or at least buried under too great a weight of soil for the midges, when they emerge, to reach the surface. Moreover, all chaff and dust from the threshing machine should be destroyed, as this often contains millions of the red maggots or their pupæ. If such refuse is thrown on one side, clouds of midges will come from it in the following May or June and infest the crops; whereas absence of attack has been found to follow the plan of carefully burning the infested dust.

Anent this pest, Miss Ormerod has an interesting note showing how materially the agriculturist may be assisted in his fight against an injurious insect by settled meteorological conditions. "In Canada," she says, "or where the weather can be reckoned on and the date of appearance of the wheat midge can be reckoned on also, injury from attack is avoided by sowing so that the wheat shall flower *before* or *after* this special time. In one case the young grain is too firm for the red maggot to hurt it; in the other the flower and germ are not far enough advanced for there to be anything to attack until the wheat midge has passed away; consequently the corn is safe. We sometimes benefit in this way here by accidental circumstances, but we cannot depend on being able to arrange it as in less changeable climates."

#### A WORKING KNOWLEDGE ESSENTIAL.

Only four insects, whose ravages are especially noticeable when harvest approaches, have been dealt with in the preceding paragraphs; but the reader will be aware, perhaps to his cost, that many other wheat pests exist. It is said that corn crops throughout the world are attacked by at least 200 species of insects, 50 or more being notably injurious, while some 20 are devastating pests. The annual loss for which these insects are responsible must be enormous, for in seasons when one country is comparatively free, another is almost sure to be ravaged. Thus, it behoves all those who have the interests of agriculture at heart to bear their part in the warfare which is being waged against our insect foes.

Only of recent years has a working knowledge of entomology been deemed a necessary part of the farmer's mental equipment. In the old days the land was tilled, the crops were sown, and all else was left—in the naive phraseology of the period—"to providence." If Dame Nature rewarded the husbandman with a manifold return for his outlay of seed and labour, the good man expressed tardy approval. If she frowned, sending the "fly" among his crops, black despair settled upon the husbandman's heart. He bemoaned his misfortunes, bowing himself meekly beneath their weight. Indeed, he accepted them with a stoicism which, in these days, is almost past belief. He would lean over his gate and watch his roots or his cabbages consumed by the nibbling millions of some dire insect pest; yet he never seems to have asked himself whether he might not, by some means, combat and vanquish the devastating army.

All this is now changed. For practical purposes it may be said that the old-fashioned farmer and his methods are alike obsolete. The era of scientific farming has been definitely entered, yet among certain classes of agriculturists, especially in outlying districts, a certain apathy is still apparent which prevents the teachings of science from bearing full fruit. Agriculturists are no longer excusably ignorant. It may almost be said that knowledge has been thrust upon them; and if the results of this knowledge are not everywhere apparent, the reason is to be found in careless indifference, or in a conservative retention of antiquated methods opposed to common sense.

#### THE NECESSITY OF PROMPT ACTION.

One point calls for special emphasis, viz., that the presence of a pest, even in small numbers, should be regarded seriously. In the case of such insects as the ribbon-footed corn-fly and the wheat midge, for example, farmers would greatly profit by adopting preventive measures at the outset—i.e., as soon as any signs of infestation are noticed—instead of delaying until a season when whole crops are destroyed. In this connection the writer may mention that the whole of the material from which the photographs which illustrate this article were taken was collected in one wheat field. All four insects were present in considerable numbers, yet not to such an extent as seriously to damage the crop. *Nevertheless, the mere presence of such pests suggested the necessity for deep autumn ploughing, for destroying couch and grasses, and for burning all refuse from the threshing machine.*

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## IV.—HYGIENIC MILK PRODUCTION.

*By J. C. Newsham.*

The public have a right to demand clean milk, and the dairyman, who brings business methods to bear on his work has an equal right to demand a fair price for such an article. This, in brief, shows how the matter of hygienic milk production stands at present. This milk, which is so excellent for human beings, is much cheaper according to its food value, than many other food-stuffs, and to poor people, the cheap milk which is sold now-a-days must be a great boon. Whilst, therefore, milk should be sold as cheaply as possible, under no circumstances should its cleanliness be sacrificed for the sake of economy in production.

In former years the cry was for rich milk ; now it is not so much richness or fat content but rather cleanliness and purity that is chiefly demanded.

Some Agricultural Societies offer prizes for the best kept dairy farms, with respect to which the cleanliness of the cows, cowsheds, and milking utensils is an essential condition, and such forms of competition are an encouragement to dairy farmers to attain to the highest standard of excellence in this particular.

When acting in the capacity of Judge at some of these competitions, I have been forcibly impressed with the high standard attained by the large majority of dairy farmers. Model buildings were entirely absent from the farms inspected, and, as a matter of fact, there was no instance at all where the cowshed and food stores were of the type that a modern architect would suggest for hygienic milk production. Yet in almost every case good dairy farmers had done their utmost to adapt the existing buildings to the essential conditions attaching to hygienic dairying. One was inclined to wonder whether so-called "model" buildings could provide anything more conducive to the good health and well-being of the animals concerned.

It is evident, however, that if the ordinary milk producer goes to the expense and trouble of improving the general conditions on his farm, so as to satisfy strict inspection and the requirements of hygienic dairying, he will require an increased price for his milk.

## SOURCES OF INFECTION OF MILK.

Apart from ordinary dirt and dust, etc., unclean milk owes its infection to the presence of certain forms of undesirable bacteria. How and when do these germs gain access to the milk ? Lehmann



found that the first milk drawn (300 cubic centimetres—about 10 ounces) contained 50,000 to 100,000 bacteria per cubic centimetre, while the main quantity of the milk drawn contained 5,000 bacteria per c.c., on an average, and the last 300 c.c. were almost or entirely free from bacteria. The conclusion is that milk in the cow's udder is free from bacteria of any kind. The high bacterial content of the first drawn milk seems to indicate that germs enter the opening of the teat and are able to work their way into the milk in the teat, where they multiply rapidly. These germs contaminate the first drawn milk mainly, and when milking has progressed for some time the milk is obtained in a perfectly sterile condition from a normally healthy cow. For this reason, therefore, it follows that the first drawn milk should be discarded. From these facts it appears that the main infection of milk must take place after, and not before, milking unless the cow is afflicted with some disease. Therefore, efforts to produce clean milk must be directed to the prevention of bacterial contamination in the handling of milk after it leaves the cow. This places the matter on a tolerably simple basis, especially now that the hygienic methods suggested by sanitary science have been adopted so extensively amongst dairy workers.

Without a healthy cow we cannot have clean milk. Therefore, let us examine the relation between the cleanliness of milk and bovine disease in general, and bovine tuberculosis in particular.

#### INFECTION FROM THE COW.

The udder of a cow can only be infected from within, that is to say, from the internal parts of the animal body. If these organs are not in their normal healthy state, the milk may not be normal or clean. Commonly, we associate bovine disease with bovine tuberculosis, for this is by far the most serious complaint attacking dairy cows. The final report of the Royal Commission appointed to enquire into the relations of human and bovine tuberculosis states that tuberculous milk is a danger to human life, especially in the case of infants. This means that a human subject may fall a victim to the disease by drinking tuberculous milk. How, then, are we to safeguard the milk consumer from this dread scourge, seeing that, according to Professor McFadyean, of the Royal Veterinary College, 2 per cent. of the milk cows in this country have tuberculosis in the udder, from which proportion we may expect milk containing the tubercle bacillus? The effect of a control of the milk supply on infantile mortality from tuberculosis was reported in the

*Lancet* of May 25th last by Professor Sheridan Delépine, of the Manchester University. In that populous centre endeavours have been made to prevent the supply of tuberculous milk to the town. The supply is regularly tested, and any farm that delivers tuberculous milk is visited by a veterinary inspector, who takes samples of the milk from the individual cows. These samples are tested, and the farmer is requested to isolate any animal found to produce tuberculous milk. He is also advised to have such a cow slaughtered as soon as possible.

From the statistics given by Professor Delépine, the conclusion may be drawn that the reduction in the amount of tuberculous milk supplied to Manchester has had a distinctly beneficial effect. Working on these lines, therefore, there appears some advantage, both to the producer and the consumer, in the former contracting with a veterinary surgeon for the periodical visitation and inspection of the herd, and also in his providing for the certification that his cows are suitable for the production of milk for human consumption.

A cow is said to be tuberculous when it responds to the tuberculin test. But, as a fact, tubercle bacilli are not usually found in milk unless the udder of the cow from which it was drawn is tuberculous. Fortunately the tubercle bacteria do not multiply in milk, so that they do not increase when the milk is kept.

#### HYGIENE IN THE COWSHED.

Given healthy cows, the chief source of infection is in the cowsheds. This is, unhappily, a very fruitful source of infection. It is, however, one subject to immediate control by the milk producer, who may easily adopt the inestimable advantages of modern hygienic methods in his every-day practice.

Undoubtedly dairy farmers of the present day are steadily improving the conditions under which they produce milk, so that now there is far less impure and unwholesome milk than was formerly the case. When the conditions that exist now are compared with those which obtained some twelve or more years ago, when I first took up agricultural work in Hampshire, it will be seen that marked changes have been effected. Not only has there been considerable improvement in the breed and quality of dairy cows, but the way in which they are attended to and kept clean is vastly superior to the methods adopted in former years. There is very little that is irksome or laborious in keeping clean cows that are out to grass for the greater part of the year, nor is there much difficulty in this respect when the cow stalls are so arranged that the

cows can put their heads over the food troughs when lying down. But in many instances the feeding troughs are so high that the cows can only rise with difficulty, and when they do get on their feet they soil the bed, so that in lying down again they become fouled with manure. This is the chief cause of soiled udders and dirty milk.

Undoubtedly the milk of cows that are housed under dirty, insanitary conditions is not clean, and would be condemned at once. It is infinitely preferable for the farmer to take steps to secure clean milk at the start rather than to endeavour to make unclean milk clean just before delivering it to the consumer. Although the expense attaching to the production of clean milk is not insuperable, yet there is quite enough additional cost to warrant an increase in its present price.

What is there in unclean milk? Grotenfelt found many different kinds of impurities in unstrained milk fresh from the cow. By means of a microscopic examination, he has discovered numerous particles of manure, fodder, skin, hair, down from birds, wood shavings, leaves and soil, woollen and linen threads, cow hairs, parts of insects, and fungi or moulds. What a formidable list! "It is natural," says he, "to suppose that a good many of the contaminating particles mentioned above came into the milk through the litter used; this may both indirectly and directly contribute to the infection of the milk." He also found fungi of many kinds present in the milk where the fodder and straw litter were mouldy owing to bad weather during harvest. Clean, dry straw is, of course, essential for the bedding of dairy cows, but in the present day there is only a limited supply of straw on the farm, and much of that is used as food instead of litter. This, and the high feeding that is practised now-a-days, makes it much more difficult to keep the animals clean than in former years, when wheat straw was plentiful and the feeding not so intense, so that the cows produced a dry and only slightly offensive manure.

#### PURE AIR ESSENTIAL.

If the air in a cowshed is not clean, the milk will not be clean. In fact, impure air is one of the foremost causes of impure milk. Hesse states that he found not less than 120 bacteria and moulds in a litre (quart) of air in a common cow stable, while the same quantity of air in a dusty school-room, from which the pupils were just hurrying out, contained only 80 micro-organisms. Bacteria, being closely connected with dust, are most numerous in air in which the

dust is set in motion, and consequently in a cow-shed when feeding and cleaning operations are in progress. The common practice of cleaning and feeding the cows immediately before milking is, therefore, a direct source of infection of milk. This work should be done after, instead of before, milking.

Thorough ventilation of the cow-sheds is vitally important at all times, and although this may lower the temperature of the atmosphere in cold weather, it has no ill effect on the cows, or on the milk yield. It has been proved that the health of the cows is better in freely ventilated byres than in badly ventilated ones, and the statement of Mr. Hendrick at the meeting of the British Association in 1911, that the milk yield was as great in the freely ventilated byres as in the others, has been substantiated by numerous experiments.

#### SOME POINTS IN COW-SHED CONSTRUCTION.

The construction of the cow-shed is intimately related to hygienic milk production. Convenience of situation and good drainage are primary considerations. In some districts, especially low-lying ones, as in the Thames valley, the drainage question is a very difficult one. The Thames Conservators have very strict regulations with regard to the pollution of water by the drainings from the dairy farms that are situated near to the river banks, and as one can obtain very little fall for drainage work the difficulty is a very serious one. In ordinary situations the manure water can be given a good fall by means of an underground pipe, and it may then be easily removed to an adjoining cesspool, or pumped out on to the nearest meadow or pasture. But a manure tank or even stagnant liquid of any kind in or near to a cowshed is anything but hygienic, and the insanitary and wasteful plan of having the dung-yard in the centre of a block of buildings should be religiously avoided.

No hay-loft should be built over a cow-shed. The top of the plastered brick walls ought to be beam-filled to prevent the lodging of dust and dirt, and coloured cement, cement plaster, or colour wash should be used up to 6 feet above the ground level, only creosoted timber being employed for the woodwork about the building. Cement or concrete is the best possible material for the floor. Concrete is perfectly water-tight, most sanitary, and more easily cleaned than anything else. As regards the internal design, the most sanitary and economical plan is to stand the cows in a double row, tail to tail, with a wide passage between them, and with gutters at least 2 feet wide and 7 or

8 inches deep. There should be no covered drains or traps of any description inside the building.

The planning of the cow-stalls is very important. A stall that is too long may directly be the cause of infection of the milk, for the hindquarters of the cow will be soiled by the manure when she lies down. On the other hand, if it is too short, the cow will lie down with her tail in the gutter, and this will spread infection far and wide at milking time. Concrete stall divisions and cement or glazed stoneware mangers raised only an inch or two, if at all, from the standing, also conduce to proper sanitation in the cowshed. As to the length of the cow-stalls, this should always be adjusted to suit the cows that it is designed to accommodate; otherwise it will be a very difficult matter to keep the animals clean.

On many well-kept dairy farms the air space in the cow sheds is, perhaps, less than it ought to be, but this has been remedied by a very free admission of air throughout the whole of the building. There are many old buildings that have thus been made quite serviceable for hygienic milk production. Speaking generally, the up-to-date dairy farm is as clean and sanitary as existing conditions will allow, and assertions to the contrary are mostly based on a few isolated examples, which are bound to exist at all times, in spite of education or legislation.

#### TREATMENT OF THE MILK.

I have visited several "model" dairy farms, where the cows are daily groomed and the men compelled to wear spotless garments and clean their hands and nails before milking, etc. But, on ordinary dairy farms, labour is already quite as costly as the farmer can bear, and it would only be advisable for him to adopt these extreme methods of clean milk production if he could be sure of getting an extreme price for his milk. The average farmer does not dream of grooming his cows, and the most he ever does is to wipe their udders with a damp cloth, which moistens the hairs and prevents dust and dirt falling into the milk pail during milking. But greater care than this is necessary. Wet milking is filthy, and the milk so produced is always dirtier than that obtained by dry milking and the stripping of the teats with the whole hand. No one who is affected with a contagious disease of any kind, or is placed in danger of any possible infection, must, on any account, be allowed to milk cows, or to handle the milk in any way whatsoever.

Milk should be removed from the cow-shed directly it is drawn

and immediately be filtered or strained. Every milk producer should filter his milk, and if a cotton wool filter as well as a fine wire gauze strainer is used, it is surprising what a large proportion of the unavoidable dirt will be extracted from the milk. These cotton wool filters are indispensable in hygienic milk production, and there should be an adequate supply of them in every dairy. The milk must always be strained in the milk house and never in the cow-shed, and after filtration, the milk should be refrigerated. As regards the cooling of milk, it may be remarked that simple aeration has no beneficial effect on its keeping quality, but cooling will have this effect.

Most of the bacteria affecting milk can be kept within low limits merely by keeping the milk below the temperature of the body, and with reasonable precaution the number may be so limited that they are rendered practically harmless. The bacterial content of clean milk can be quite easily kept below 10,000 per c.c. for at least twelve hours if the milk be cooled to 50 deg. F. as soon as it comes from the cow.

As a high temperature is unfavourable to bacteria, some milk producers pasteurise their milk, that is, heat it to 150 deg. F. for about twenty minutes, or 160 deg. F. for ten minutes and then promptly cool it to 50 deg. This destroys most disease-producing organisms. Sterilisation is also practised as a means of keeping milk pure and fresh for a long time. It, however, produces chemical changes which profoundly modify the constituents of milk, and such milk very rapidly deteriorates when the sealed vessel is opened.

There is a general consensus of opinion that fresh milk, if clean, is superior to that either pasteurised or sterilized, and to supply such milk should be the aim of every dairyman.

## V.—AN EXPERIMENTAL POULTRY FARM IN DENMARK.

*By Granville E. Lloyd Baker.*

The following account of some of the experiments carried out at Lundsgaard, the seat of Count Frederick Ahlefeldt-Laurvig, may be of interest. In the following figures I have kept to the Danish pound, which is 10 per cent. more than the English.

The chicken experiments began on April 26, 1911, with 35 Buff Orpingtons and 35 Brown Leghorns. They were weighed when they were hatched, and every ten days after.

BROWN LEGHORNS.				BUFF ORPINGTONS.	
MONTH.	Day.	Total weight of 35 Chickens.	Average of each.	Total weight.	Average.
		lbs.		lbs.	
April	.. .. 26	2.780	.079	2.620	.075
May	.. .. 6	5.113	.146	4.464	.128
"	.. .. 16	10.296	.294	7.549	.222
"	.. .. 26	15.656	.447	11.889	.350
June	.. .. 6	21.485	.614	18.084	.532
"	.. .. 16	25.881	.784	25.615	.753
"	.. .. 26	35.245	1.101	32.148	.946
July	.. .. 6	45.546	1.380	41.279	1.230
"	.. .. 16	55.80	1.69	50.240	1.48
"	.. .. 26	60.54	1.83	56.45	1.66
August	.. .. 6	68.61	2.08	64.87	1.91
"	.. .. 16	76.09	2.31	72.28	2.13
"	.. .. 26	86.20	2.61	82.54	2.43
September	.. .. 6	96.65	2.93	93.79	2.76
"	.. .. 16	107.15	3.25	106.83	3.14
"	.. .. 26	123.60	3.75	124.00	3.65
October	.. .. 6	131.76	3.99	139.84	4.11
"	.. .. 16	140.54	4.26	149.12	4.39
"	.. .. 26	145.35	4.40	159.01	4.97

It will be seen that the Buff Orpingtons, though smaller when hatched, were heavier by 11 per cent. at six months old.

An experiment for egg-producing was carried on in 1909-10, with the following results :—

The experiment began on December 1, 1909, with three sets as follows :—30 Buff Orpingtons, 30 Brown Leghorns, and 30 White Nassaus, in order to ascertain which breed is the best for egg-laying on a restricted area.

#### AT A YEAR OLD.

Buff Orpingtons had laid on an average	123 eggs.
Brown Leghorns	111 "
White Nassaus	103 "

#### AT TWO YEARS OLD.

Buff Orpingtons had laid on an average	96 eggs.
Brown Leghorns	111 "
White Nassaus	94 "

The next was a fattening experiment. The Chickens 7½ months old

When put in coops weighed	.. 67.92 lbs.
When the experiment was finished	.. 78.39 "

A gain of about 14 per cent.

A similar set kept at liberty

Weighed at the start .. .. 68.68 lbs.

When the experiment was finished .. 78.39 „

A slightly smaller gain than the last.

Another set fattened by a machine

Weighed at the start .. .. 67.61 lbs.

When the experiment was finished .. 75.87 „

This shows the lowest result.

With chickens  $4\frac{1}{2}$  months old the following were the results :—

In coops	{	When the experiment began	
		they weighed .. ..	47.91 lbs.
		When it finished .. ..	63.83 „
At liberty	{	When the experiment began	
		they weighed .. ..	46.85 „
		When it finished .. ..	63.33 „
By machine	{	When the experiment began	
		they weighed .. ..	47.03 „
		When it finished .. ..	56.96 „

The weights at the finish were taken after the birds had been kept without food for 24 hours.

Other experiments in fattening have been carried out. Six of each breed selected and six of each cross that seemed likely to be useful were kept in separate pens, and similar food was weighed out each day for each lot. At the end of every week the fowls were weighed and compared. Some similar lots were isolated and fed with different food, and their weights were compared from time to time, so as to show not only what were the fattening properties of each breed, but how far the use of more expensive food was justified by its results. The results of these experiments, which are still in their infancy, have not yet been published.

The fertilising experiments at Lundsgaard, in 1910, showed that a hen could produce 11 or 12 fertilised eggs after the cock was taken away. The hen, after the cock had been away for so long that there could not possibly be any fertilised eggs, was put among the other hens with the cock, and the result was that the second egg she laid was fertilised.

I have given these particulars showing the lines on which the experiments are being carried out, in the hope that it may encourage some large poultry-farmers in England to experiment in similar directions.

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## VI.—THE PROBLEM OF WEATHER PROPHECY.

*By S. Leonard Bastin.*

In spite of the wonderful advancements for which the opening years of the twentieth century will ever be famous, there are not a few problems, which, up to the present, have baffled the closest scrutiny of the investigators. Nature is reluctant to reveal the secrets which she has so jealously guarded throughout the ages, and it is only the most painstaking student who can hope to elucidate the least of her mysteries. Indeed, in many directions there seems little to be done save the patient collecting of all available data, in the hope that such evidence may ultimately lead to the solution of the problems. This is to a large extent our present position in relation to weather prophecy. It is a fact that we know practically nothing as to the real cause of meteorological conditions. In a general sense we must regard the sun and the rotation of the globe as the prime causes which bring about the variations in our weather, but how it is that weather conditions are so disordered we cannot even guess. The amount of heat received from the sun is the same in each year, and must have varied only in the smallest degree for ages; in these circumstances it is not easy to see why the present state of affairs should exist. The earth movements are so regular that we base our whole standard of time on them; there is nothing here which should interrupt the precision of meteorological conditions. It may be said that the weather of the world appears to have become involved in a hopeless muddle, and there seems to be small chance of any kind of order being established, so far as one can judge. The meteorologist cannot admit that Nature, as judged by the weather, is by any means perfect. Certain regions of the earth are deluged until all the land is under flood, whilst other parts are languishing for the showers which they rarely obtain. However, whatever opinions one may hold with respect to the weather, we are in the unfortunate predicament of having to take what we get. The meteorological conditions are, practically speaking, out of our control, and the most that we can do is to endeavour to set up a system whereby we may discover some sort of order in the tangle with which we are confronted.

### THE VALUE OF WEATHER FORECASTS.

Were it possible to forecast the weather with reasonable accuracy for a long while ahead, such as three months, or a year, the gain to almost every class would be considerable. Crops

might be adjusted according to the nature of the season foretold. The movements of ships could be so controlled that the approach of severe gales would be anticipated, and arrangements made accordingly. Even ordinary business people, did they know the nature of coming weather, might often effect a saving in their outlay. The value of long distance forecasting would be especially great in a country like England, where there seems to be so little stability about the climate. Yet there is no regular method of weather prophecy for any time ahead, and it must be confessed that there has not been very much progress made in this particular direction. The question is hampered by reason of the comparatively short time over which official records are available. It is only during the last sixty years that the meteorological conditions in Great Britain have been noted down with anything like scientific accuracy, so as to give us a complete tale of the weather. There are, however, several points which have a very important bearing upon the subject under consideration, and it will be of interest to enumerate these, seeing that some of them seem to promise help to the student in search of a method of long distance weather forecasting.

#### WEATHER TYPES WHICH RECUR AT CERTAIN TIMES.

A record of meteorology for a number of years shows that there is an undoubted tendency for certain types of weather to recur at regular intervals. All those whose business is in connection with the land will bear testimony to this fact. A few of the more prominent examples may be given by way of illustration. A weather note book which the writer has kept seemed to show that we very frequently experience a spell of cold weather, with, more often than not, a heavy fall of snow, during the first fortnight in February. In like manner the second week in May is, as a rule, of an unseasonable nature for the time of year, and it is about then that the disastrous frosts which do so much damage to the blossoming fruit trees will be likely to take place. However bad and unsettled a summer we may have, it is rarely that we do not get some days of fine weather with the first half of July. This was so in the dreadfully wet season of 1903, and, more recently still, in 1907, the best spell of weather was experienced about that time. It has also been noticed that the opening days of December are, as a general rule, mild and pleasant, whatever the rest of the month may be like. The observation has been made that these periods are mostly preceded, and very often followed, by storms of some severity.

But one cannot lay down any hard and fast rules in connection with these periods, and it is impossible to go farther than to say that there is a probability that certain conditions will be prevalent at the times mentioned, though such is the variability of British weather, a totally dissimilar type may be experienced.

#### ONE TYPE OF WEATHER OFTEN FOLLOWED BY A DIFFERENT KIND.

A good deal of importance must be attached to the theory that, after a long spell of one kind of weather, another spell of a diverse type may be expected to occur. One point in this direction was noticed as long ago as in 1776 by Gilbert White. The old-world naturalist places on record the fact that a very wet autumn is almost always followed by a severe winter. He says "that intense frosts seldom take place till the earth is perfectly glutted and chilled with water, and hence dry autumns are seldom followed by rigorous winters." He cites several seasons occurring during his lifetime which fully bear out the truth of the statement. In recent years, too, we have a number of examples which those with good memories will be able to call to mind. The bitter Christmas of 1890 was preceded by an unusually wet autumn—serious floods in the Thames Valley, and elsewhere, being experienced. Five years later an almost equally dripping autumn was experienced, and in due course came the hard winter. The rigorous character of the weather in February and March, 1895, will not soon be forgotten by the people of these islands. The explanation given by Gilbert White, setting forth the chilling of the ground by saturation as the cause of the supervening cold, is, no doubt, correct up to a certain point. There is, however, another reason to which attention must be drawn. In meteorology it is often observed that an extreme in one direction is not infrequently followed by an extreme in another. Thus the rainy period in the autumn, during which the south-westerly current would prevail, is likely to be succeeded by a flow of air from the north-east—a state of affairs, which in winter, would be almost certain to mean severe conditions. In the opposite direction, one may gather some idea of the probable weather in the autumn if the prevailing type is of an easterly character. Then the winter, or at any rate the early part of it, will be likely to be mild and rainy. Again, a very dry spring with much east wind is rarely followed by a fine summer; the latter season being rainy with much cloud. Students of folk lore will realise that from very early times man has been conscious of these balancing periods in the weather. Some of the oldest sayings and rhymes in almost all countries have, for

their subjects, the kinds of conditions which may be expected after a certain type. The saying is a familiar one to most people that if the cat sits in the sun at Christmas it will be likely to be by the fireside in March. Such a forecast has a good deal of truth in it, by reason of the fact stated that one extreme kind of weather is likely to be followed by a diverse type.

#### THE INFLUENCE OF THE SUN AND MOON ON THE WEATHER.

From quite distant times there have been endeavours to establish a relation between the weather and the phases of the moon. Some years ago a table was brought out purporting to show that a certain type of conditions would prevail according to the time at which the different quarters occurred. Although it is likely that the lunar orb may have some influence other than its effect upon the tides, the actual workings of this theory of a definite connection between the moon and the weather have not been such as to bear out the first expectations. Of more immediate interest, however, are the investigations which have been carried out to show that there may be a relation between the sunspot periods and the amount of rainfall. Whilst the evidence is of a very conflicting nature, it has been proved to some extent that the maximum of sunspot activity coincides with an increased precipitation of moisture. Thus we may take it that, at the beginning of a period of eleven to twelve years of solar activity, the rainfall of a district might be expected to increase up to the sixth year, and gradually decline towards the end of the time. Even in 1872 attention had been directed to the fact that tropical cyclones seemed to be less frequent and likewise of decreased severity during the sunspot minima. There have also been many attempts to link up the visitation of severe winters with the solar phenomena, and some facts of value have been elicited, although no very definite lines can as yet be advanced. Indeed, it must be admitted that the whole subject of the effect which the differences on the face of the sun have upon the meteorology of the world is one in which there is room for an immense amount of research. That the matter is full of promise for the help which it may render in the problem of long distance forecasting there can be little doubt.

#### THE TENDENCY OF WEATHER TO COME IN PERIODS.

That we may trace a definite periodicity in the weather has been known for some time. There has also been found to be a tendency for the character of certain conditions to be preserved for definite periods. Some observations carried out at Brussels showed that

if it was wet and unsettled for ten days, the chances were immensely in favour of the eleventh day being wet too. To push the point further we may take it that, if one-half of the summer is wet and unsettled there is a greater chance that the latter part will be so as well than that it will be fair and dry. In the same way a frost which has been able to hold for a week will be more likely to continue than to break up during the next week. Of course this is not saying that for every week which a certain type of weather holds the likelihood of its ever breaking up at all is lessened. The theory is simply that the longer the conditions are in existence the greater is the probability that they will not break up soon. The same argument may be applied to human life ; in that there is less chance of a baby one year old living another year than there is of a man of thirty doing so.

#### THE GULF STREAM AND LONG DISTANCE FORECASTING.

Within recent years some very interesting investigations have been carried out by Dr. Bassett, of the Lancashire Sea Fisheries, in connection with the relations between the Gulf Stream and British weather. These promise to have a remarkable effect on long distance forecasting, and it will be of interest to record the facts which have been elicited. The origin and course of the Gulf Stream may be briefly outlined. Owing to wind pressure from equatorial regions the waters in the Gulf of Mexico are heaped up so that the level is actually in some places three or four feet higher than it is at other points along the American coast. Of course water will not remain piled up in this fashion, and the final outcome is that the stream which has poured into the Gulf of Mexico at one end finds its way out through the Straits of Florida, flowing like a vast river fifty or more miles in width, and at least a thousand feet in depth. The temperature of this water is very high at this point, and it may well be as much as 80 deg. F. This huge ocean current is also extremely salt, far more so than the seas which wash the shores of the United Kingdom. After passing along the eastern coast-line of the United States, the Gulf Stream finally spreads across the Atlantic towards Europe. As the stream journeys eastwards it becomes much broader and also more shallow ; a great deal of its warmth is lost, but it, nevertheless, remains at a much higher temperature than the rest of the ocean. As the Gulf Stream nears Europe it is divided into two parts, one passing down by Spain and Africa, and the other travelling slowly along the western shores of the United Kingdom, finally losing itself in the

Arctic Circle. Whilst the effect of the current is mostly felt on the western seaboard of these islands, the Gulf Stream Drift, as it is called, has a marked general influence on the climatic conditions of the whole of the United Kingdom. The winter temperature of the Gulf Stream Drift is higher than that of the land, whilst on the other hand it is lower during the summer. It is a natural outcome of these conditions that the winds coming from the Atlantic in winter tend to bring us mild weather, whilst in the summer the reverse will be the case. Now it has been realised for some time that the Gulf Stream Drift varied a good deal from one year to another in strength, but it has remained for Dr. Bassett to show the connection between these changes and British weather. The actual discovery was made in the following manner.

#### THE ACCURATE FORECASTS WHICH HAVE BEEN MADE.

A very narrow tongue of the Gulf Stream Drift passes right up the middle of the Irish Sea. In the year 1906 it occurred to the Lancashire Sea Fisheries that it might be interesting to test the degree of saltness, and also the temperature of the waters centring round the Isle of Man. It was arranged to take samples of water at various fixed points and also to secure records of the temperature at these stations. In this way it was proposed to discover to what extent the Gulf Stream Drift influenced the waters of the Irish Sea, for we must remember that the waters of the current are both saltier and warmer than those of the seas which surround our shores. One of the steamers belonging to the Association was despatched for the purpose; duly equipped with the necessary appliances for sampling sea water. For years it has been known that the Gulf Stream Drift varies to some extent with the seasons; thus there is a normally increased flow in the spring of the year. It was not very long after the starting of these expeditions that the fact was established that in some years the Gulf Stream Drift is much stronger during some springs than others; the intensely salt water of a high temperature is to be discerned farther north than is usually the case. The idea occurred to Dr. Bassett that the intensity or otherwise of the Gulf Stream flow might be connected with the kind of summer which we should experience. For four years Dr. Bassett has prepared a forecast of the type of weather which is likely to prevail in the summer; this has been made up in February:

1909. Gulf Stream Drift late and weak in arriving. The summer experienced was one of the worst on record.

1910. Gulf Stream Drift again late and weak. If anything the succeeding summer was worse than that of 1909.

1911. Gulf Stream Drift very strong and unusually early. The summer was the hottest and finest within living memory.

1912. Gulf Stream Drift not strong and somewhat late. The summer experienced was very unsettled with some fine intervals but with a great deal of rain.

In each of these four years the type of summer has been remarkably similar to that which Dr. Bassett forecasted. In the same way it is believed that a connection can be traced between the flow of the Gulf Stream Drift and the kind of winters which we experience. Dr. Bassett has expressed his belief that the mild winter of 1910-11 was due to the early and strong flow of the Gulf Stream Drift over that period. That this theory has great possibilities in it concerning the question of long distance forecasting there is little doubt. If every farmer in the land had known of the tropical summer of 1911 in advance what modifications could he not have made in his crops !

#### WEATHER FORECASTS FOR SHORT PERIODS

It will have been realised that after all the problem of long distance weather forecasting is a matter which is still unsolved to a considerable extent. The story is a very different one in the case of the weather forecast which undertakes to presage the conditions for a period of twenty-four or forty-eight hours. Remarkable success has crowned the efforts of our own Meteorological Office, all the more creditable when we remember the peculiar difficulties under which those in charge of the department labour. The position of the British Islands is, from a weather standpoint, unique, owing to the fact that the group is situated upon the verge of the Atlantic Ocean. As a general rule it may be said that the weather of the world moves from west to east, and it is thus not an easy matter to get a long warning of an approaching disturbance from the "herring pond." The arrival of a deep depression at Valentia (Ireland), as shown by a fall of the barometer, is telegraphed to London, but there is scarcely time to prepare the forecast ere the storm is upon us. It has often been pointed out that, were it possible to establish floating stations in communication with the mainland at distances up to five hundred miles out in the Atlantic, the problem of weather forecasting in the United Kingdom would be rendered a much more simple affair. We should then receive ample warning of the approach of all cyclonic disturbances, and the foretelling of the

weather for two days or more ahead would not be at all out of the question. Thanks to the remarkable discoveries of Marconi and the rapid spread of wireless telegraphy such stations are not now so urgently needed. Arrangements have been made with the companies owning Atlantic liners to despatch wireless messages from their ships describing the weather at the time of the despatch, and naming the point from which the message was sent off. During the twelve months ending March, 1912, 4,922 wireless reports were received by the Meteorological Office. The real difficulty in connection with these messages lies in the fact that a large number of them are not received in time to be of direct service in the preparation of the forecast for the day. It should be explained that daily forecasts have to be prepared within two, to two and a half, hours of the time when the general observations are taken, so that wireless messages which can be employed must arrive prior to this preparation. If the majority of the warnings could be received with the regularity which characterises those despatched from the land stations the gain would be enormous. On certain occasions when the message has been received whilst the forecasts were in preparation they have helped considerably. Two examples taken from the Weather Report prove the value of these wireless telegrams. On January 28th, 1911, a message which came along about noon showed that at 7 a.m. on that day there was a deep depression in existence at some distance to the west of Ireland. Storm warnings were at once despatched to the west coast, and during the following night very strong gales swept over that part of the country. On the evening of March 5th, two wireless messages were received just as the forecasts were being drawn up. As a result of these the prophecies were very much modified, and in consequence the forecasts proved to be accurate in all essential features. It would, indeed, be very desirable if it were only possible to secure a more speedy service of weather messages from ocean-going steamships, but as the telegrams are often transmitted from one vessel to another, it is difficult to see how the delays can be avoided.

#### WEATHER FORECASTING ON THE CONTINENT AND THE UNITED STATES.

As showing the comparative ease with which other countries, more favourably situated than the United Kingdom, can prepare their weather charts the cases of France and Germany are interesting. In both countries the centres receive constant telegrams from regions which lie to the westward apprising them of conditions



which are being experienced in those quarters. But it is in the United States of America that the matter of weather forecasting to the extent of several days has been most successfully carried out. The Central Weather Office is situated on the eastern side of the huge continent, and is in a position to issue warnings to the whole of the area under observation. So accurate is the daily forecast that agriculturists rely upon it to an extent which is quite unknown on this side of the water. In fact the great American continent is the most fully weather warned in the world.

#### WHAT THE BRITISH WEATHER OFFICE HAS DONE.

It is legitimate to take a little pride in the remarkably successful weather forecasts which are issued by the British Meteorological Office. People are not infrequently heard to say that the daily weather forecast which they read in their newspaper is often more or less wide of the mark of actual experience. It must be borne in mind that these forecasts are intended to apply in a general sense and to comparatively large areas. All kinds of local elements, such as proximity to the sea, and configuration of the country, [to mention only two] will tend to modify the conditions. The curious local character of British weather is most marked and must always be taken into consideration. To give a single instance, the terrific hurricane at Guildford in August, 1906, was only felt over a very limited area. Standing upon a hill above the river valley it was possible to see a regular path of about a quarter of a mile in width along which the hurricane had swept. Here trees were rooted up and buildings wrecked in a manner which is luckily rare in this country. Hundreds of similar cases might be cited as illustrating the local character of the weather in our islands.

For the purpose of weather forecasting the map of the British Islands has been divided up into eleven sections. Every day between 7.15 a.m. and 9.30 a.m. messages are received from twenty-nine stations, chiefly on the coast in the United Kingdom, and in addition, from a number of observatories on the Continent. With this information a chart is prepared and forecasts issued for the twenty-four hours following the next noon. In the same way after receiving certain reports during the day, a forecast is issued to cover the time from the following midnight. In addition to these statements the office issues special warnings of approaching storms to any ports which are considered to be of sufficient size to warrant the proceeding. The receipt of such a notice is signified by the hoisting of the well-known cone by the harbour-master, or other official, during the day-

time, or the running up of lanterns at night. This latter practice has, however, fallen into disuse at many places, a fact which is to be deplored.

An interesting portion of the work which falls to the lot of the Meteorological Office is the issuing of special afternoon forecasts, during the summer months, to agriculturists. In the majority of cases these notices are only required by individuals for a restricted time, such as during the hay-making season, or whilst harvesting is in progress. The number of applicants for these forecasts is steadily on the increase, and many farmers who do not yet avail themselves of this knowledge might do so with advantage. In some cases where required, a more extended forecast has been given and this service has been much appreciated seeing that it has often enough saved the recipient a considerable amount of money. Apart from the issue of forecasts for farmers the Meteorological Office is at all times willing to issue by telegraph suggestions as to the probable weather for any district. Many people are in the habit of availing themselves of this service. The cost is simply the fee required by the Post Office to cover the telegram. During the season 1910 (a more typical period than the settled summer of 1911) the number of telegrams giving forecasts for agriculturists was no less than 2,500. Many of the recipients of these wrote in most glowing terms of the practical use which the forecast had been to them. It is unfortunate that a regular public service cannot be instituted whereby copies of telegraphic forecasts for farmers could be constantly exhibited at country post offices.

#### THE SUCCESS OF THE BRITISH WEATHER OFFICE.

It will be of interest to consider the real amount of success which attends upon the efforts of the officials at the Meteorological Office. As far as possible a very exact record of the weather conditions prevailing in the districts to which the forecasts have been sent is kept. Certain definite rules are designed in testing the result of the forecast as to whether it can be called a complete success, a partial success, or a failure. Those results which are classed as complete successes are so in the fullest sense of the word. The term partial success is used in those cases in which more than half the details (such as the direction and force of the wind, the temperature, the state of the sky, probability of rain, etc.), were borne out by subsequent happenings. A summary of all the districts supplied with forecasts in the year 1911 shows that of complete successes there were no less than 62 per cent. Of partial successes there were 32 per

cent., whilst the remainder were classed as failures. The majority of these were not entirely wrong in all particulars however. That this was not an exceptional year may be gathered from the fact that during the previous ten years the average of complete successes was 57.5 per cent., and of partial successes 32.9 per cent. This makes an average of complete or partial successes of more than 90 per cent., a wonderful record when we consider the difficulties which face those who attempt to forecast British weather. In addition to the ordinary forecasts, it is often now possible to issue "a further outlook." This was attempted on 173 occasions in the year 1911. In these cases 3 per cent. of the notifications were completely successful, 8 per cent. were only so to a partial extent, whilst 9 per cent. proved to be incorrect.

Every time the report of the Meteorological Committee is published mention is made of the valuable services which are rendered to the cause of weather investigation by private correspondents. It is not so much realised as it should be that the authorities are always glad to receive information from any responsible person concerning conditions which have prevailed in the locality from which the record is despatched. It is impossible to know too much about the weather and one of the surest ways of elucidating some of the problems presented is that more persons shall take up the serious study of the subject. A carefully kept note book, in which everything of meteorological interest is written down accurately and with regularity, would form a most valuable contribution to the weather records.

#### THE WEATHER FROM THE FARMER'S POINT OF VIEW.

We may take it that there are no indications of the weather being really more changeable in the spring than at any other time of the year. Such alterations as do occur at this season are of the greatest importance to agriculturists on account of the sensitiveness of young plants to sudden changes in temperature. As Director of the Meteorological Office, Dr. W. N. Shaw has collected some interesting facts relating to spring frosts, and these may be briefly summarised. Serious frosts may occur in the spring whenever the following weather conditions are to be observed. It is not an uncommon thing to experience a spell of very wintry weather in April. The wind is in a northerly quarter, and if the barometer falls there is every probability of heavy snow showers followed by frost of some severity. Again in the same fickle month, during a spell of rainy weather, when the wind is in the south or south-west, the glass falls

and the wind veers to the west or north-west. Often enough this change comes about in the late afternoon, and the sky clears, meanwhile the temperature falls very rapidly. In such circumstances a frost is almost certain. Another type of weather during which frosts may be expected is that which often occurs for some weeks in March, April, or even May. Here the days are gloriously sunny and bright, and under the increasing power of the sun the air is warmed. Owing to the clear sky, however, the temperature falls quickly after sundown, and very sharp frosts will often ensue. At such times the difference between the highest temperature of the day and night will be very considerable. It is unnecessary to suggest that this process of warming and chilling is very harmful to all kinds of vegetation. It is pointed out that a very great deal will depend upon the situation of the ground, as to whether frosts will be experienced, especially during very calm weather. On the tops of the hills there is less likelihood of a frost than there is down in the valleys or hollows. This is largely due to the fact that the cool air gravitates to the bottoms, whilst the warmer currents move upwards to the higher levels. Thus it is quite possible that the uplands may escape any frost at all. On occasion, even where the variation in height is only a matter of a few feet, it may make all the difference. It is, of course, well known that the temperature "on the grass," as meteorologists say, may be a number of degrees lower than that which is recorded by the instrument in the screen four feet above. This shows that the layer of frosty air may be very shallow. Any kinds of hollows, even on the hillsides, are much more likely to be visited by frosts than the more open situations; depressions of all sorts offer suitable positions for the formation of pools of chilled air. Matters of this kind should always be borne in mind by the grower of crops, and if there was a more general study of such questions there can be little doubt that many of the disasters associated with spring frosts might be avoided.

#### PROTECTION AGAINST EXPECTED FROSTS.

In this country at any rate very little progress seems to have been made in connection with the shielding of plants from the frosty air. Of course the simple covering up of a plant will prevent the specimen from losing heat, and at the same time keep away the cold atmosphere. In the fruit plantations of California it is now the practice to saturate the ground in the orchards with water. The effect of this may be two-fold. Either the evaporation of the water promotes the formation of a mist over the land and in this way protects the

orchard, or else the comparative warmth of the water prevents the ground becoming so chilled as would otherwise be the case. On the other hand it is sometimes urged that this saturation of the ground might be harmful to very delicate plants, seeing that when their cells are full of moisture, vegetable growths are more susceptible to cold than when they are in a more dry condition. Another plan which many fruit growers declare is highly beneficial is the lighting of numerous very smoky fires in the orchards. The dense clouds will tend to prevent the loss of warmth from the ground, as well as helping to protect the delicate buds on the trees. There is little doubt that there is scope for a large amount of enquiry on the subject of the protection of crops from frost. Those who are in a position to do so should certainly carry out experiments to find out the best way of preventing damage. It may be added that any information on the subject will be gratefully received by the Director of the Meteorological Office, London.

### IS THE BRITISH CLIMATE CHANGING ?

Nowadays one often hears the remark that the climate of this country is changing. A very hot summer, or a very cool one for that matter, will call forth a regular chorus of criticism on the way in which the weather has changed "since we were young." Such alterations, if they have taken place, will only have been of a slight description ; however, as proved by certain records these are of rather an interesting character. Glaisher, a most careful observer, declared thirty years ago that he firmly believed that an annual mean rise of temperature of two degrees had taken place in the United Kingdom during the preceding hundred years. This was considered to be due to the many extensive drainage schemes which have been carried out in the British Islands. Water-logged land is, of course, cold land ; take away the moisture and the temperature of the soil will rise considerably. The state of the land, whether chilled or warm, is bound to re-act upon the atmosphere, thus affecting the temperature of the air to a greater or less extent. Of course our summers of recent years have varied so extraordinarily that it is impossible to arrive at any definite conclusion. It seems fairly certain, however, that as a result of milder conditions our winters are less severe than formerly ; moreover they are later in coming. The old-fashioned winter started before Christmas ; our winters rarely begin until well into the new year. Whether such a change is to be regarded as permanent it is not easy to say. In France a very interesting table has been compiled in connection

with the vintage by means of which the date of the gathering in of the crops is known as far back as the fifteenth century. In glancing over the mean dates for the different centuries a curious ebb and flow is to be detected. In one hundred years the date of the gathering of the crop is about five days earlier than in the previous century. Later on there is a recurrence to the earlier vintage. At the present time the date of the grape harvest at Aubonne is exactly the same as it was at the close of the sixteenth century. In America, the meteorologist Schott has collected all possible records regarding the rainfall and temperature of the various states, and he has come to the conclusion that by these he can show that the variations which occur over large areas evidence a remarkable uniformity. These weather changes take the form of waves, representing warmer or colder periods, and the regularity with which they occur one after the other, destroy any idea that there is a definite progression in any one way. On the whole it is correct to assume that, apart from certain changes which come about as the result of land drainage, there is little evidence in support of the theory that any substantial, and permanent alteration, is taking place in our climate.

#### THE FUTURE OF WEATHER FORECASTING.

It has been indicated that good work is being done by the Meteorological Office in the way of sending forecasts to agriculturists. One can hardly believe that this is not capable of greater extension in the future. Certain difficulties stand in the way at the present time. One of these is that many farmers, even if they were supplied with forecasts, would hardly be able to understand them. The science of meteorology is so young that it has as yet scarcely been recognised in our schools, although during the last few years there have been some beginnings made in this direction. We are, however, still a long way from acknowledging that the weather is one of the most important branches of Nature Study. Another difficulty, which is a very real one, centres round the fact that the general forecast must of necessity cover a wide area and cannot take count of local conditions. In a measure this objection may be met if farmers could make themselves conversant with the application of the general terms to the district in which they live. There can be little doubt that an individual receiving the charts issued every day by the Meteorological Office, who considered these in their relation to local conditions, would be able to issue very reliable forecasts for the district. If such a person was to be found in the different agricultural centres it would be a very good thing for

the farmers of the United Kingdom. Of course there is still a certain amount of prejudice to overcome. In many parts, especially in remote areas, your countryman cannot be made to believe that officials working in a London office can possibly tell him anything that he does not know about the weather in his district. Dr. W. N. Shaw has recently published a very interesting book\* on forecasting weather, a volume which all those who are interested in the subject should not fail to read. By way of conclusion one may reproduce his final words on the practical utility of weather forecasts. He says, "It would be a matter of great interest to know the actual yield of farm produce each year estimated as a percentage of the maximum possible under the most favourable conditions of weather, and by how much a promising result is spoilt by bad weather. The destruction of lambs by heavy snowstorms, of fruit and potatoes by late frosts, the shortage of hay or roots for want of water, and the loss of crops by inclement harvest weather all put together would total up to a large percentage and a vast sum of money. To these must be added the loss or depreciation of live stock or perishable goods, in consequence of rough weather or delays in transit, or the overstocking of the market in bad keeping weather. With a lifelong experience of a heavy percentage of inevitable losses, it is little wonder that the farmer should take a philosophic view of the situation. If he is going to lose something like 40 per cent. it hardly seems worth while to trouble about a margin of 1 or 2 per cent. But the difference might easily reach a figure that would convert a loss on the year into a profit, and whatever is gained by improving our knowledge of the weather is so much to the good even though it be not the whole, so that there is certainly a golden opportunity for successful forecasts of weather."

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## VII.—TOWN LADS ON COLONIAL FARMS.

*By Thos. E. Sedgwick.*

In last year's volume of this Journal some particulars were given of a practical experiment made by the Government of New Zealand, with a view to demonstrating the suitability or otherwise of town lads for work on Colonial farms.

The result helps to dispel the impression that town lads will not settle down or prove adaptable, whilst the correlative sugges-

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\* "Forecasting Weather." W. N. Shaw, F.R.S., Sc.D. Constable.

tion that they would be ill-treated, over-worked, badly fed or under-paid by colonial farmers has been similarly refuted by the letters of the lads themselves.

As previously stated, on being approached, on behalf of a Committee of Managers of Working Boys' Clubs and others interested in the emigration of surplus youthful labour from our manufacturing areas, the Government agreed to try fifty such lads, to adopt them as wards of the State, and to apprentice them to approved farmers under an agreement, the terms of which were given in the last issue of this Journal.

The party consisted of fifty lads, drawn equally from London (principally the East End) and Liverpool, and from widely differing conditions of home environment and previous experience. The ages ranged from sixteen to twenty, and each was made fully aware of the conditions, hours, distance from their nearest neighbours, monotony of the life, and other drawbacks of the life from a town lad's point of view.

The Government of New Zealand apprenticed the lads at graduated rates of pay to good employers, the Secretary of Labour reserving the right to cancel the agreement, should it be found that any boy was not being properly treated. Under the agreement the wages were banked for three years, or until the boy came of age, with the exception of one shilling a week pocket-money. A large proportion of the success achieved is due to the New Zealand Labour Department's enlightened conduct of the experiment, and the balance to the lads themselves.

The report of the Secretary for Labour on the first year's working of the experiment has now been received, and as it contains much valuable information for guidance in selecting future parties, with respect to which there have hitherto been no data available, it has appeared desirable to supplement the information contained in last year's article with some particulars extracted from the Report.

#### PERCENTAGE OF SUCCESSES.

Of the fifty sent out, thirty-three are reported to have made good progress, and to have given no trouble to the Labour Department in New Zealand. Some of these boys have also received very high testimonials from their employers, and still more tangible proofs of satisfaction, such as a horse, a bonus of £5 or more, and an increase on the rates of wages promised.

Seven are included in the second schedule, as their conduct had not been entirely satisfactory at first, but it is expected they will



turn out all right eventually. Five of these were cases in which pairs of boys had been placed together on the same farm. One other pair of boys placed on a sheep station did well. This indicates that, except on distant stations, the old adage still applies that a farmer who has two boys considers he has only one and a half, and one who has three finds that he has none at all. The practice of putting mates together has therefore been abandoned, but it is found to be a good arrangement to place them on farms a few miles apart.

All the ten included in the third schedule as "failures," were over eighteen years of age. Of these, two had returned home to Liverpool, three had been found difficult to manage, impertinent, etc., four had absconded from their situations (two apparently to Australia), and one had left his situation for another, but subsequently returned to the guardianship of the Department.

In other words, forty-three of the original party are known to be still on the farms under the guardianship of the Labour Department, two have returned, and the other five are believed to be at work elsewhere in New Zealand or Australia. The figures will doubtless vary in another year.

The proportion of Londoners and Liverpudlians in each schedule is practically equal. All the Londoners have repaid the amount of their fares as agreed, but three of the others absconded before completing their repayment. The boys have also each a considerable amount of money to their credit, thirty-five having earned over £25 in the first year, and each will have an average of from £70 to £100 in the bank at the end of three years.

When it is remembered that 50 per cent. is considered a good average of successes in general emigration work, the result of 80 per cent. or over is very satisfactory in a new development of Imperial Migration, which was formerly considered an impossible field of operations, and the conduct of which entitles it to be regarded as the strictest experiment ever made in this direction. It is also higher than the percentage of colonial-farm born boys who remain on the land.

#### LESSONS OF THE EXPERIMENT.

From this Report, and from the letters of the boys, their employers, and their friends, many useful lessons can be drawn. The most outstanding point is that town lads make admirable farm workers. They are quick and active, receptive and hardworking. They have nothing to unlearn, but coming to their work with an open mind, can learn, settle down, and subsequently marry.

The following are among the additional points which Emigration Representatives and others concerned would do well to lay to heart in selecting lads for Australia or New Zealand in future.

- (1) Younger boys settle better on dairy and mixed farms. Older lads often find the monotony of such work irksome. Exceptions might be made to this rule in the case of those who can pay their own fares or who have registered their wish to sail at least six months prior to date of departure. (The Liverpoolians were invited to join the party only three or four weeks before the sailing of the vessel, and some may have made up their minds in haste and repented at leisure).
- (2) Only ten per cent. of boys over eighteen should be taken in future parties, and these should be placed on sheep stations. The age of success for Liverpoolians is lower than that of Londoners, and further experiments will be needed to test the boys from the smaller provincial towns, where the meretricious attractions of town life are not so persistent.
- (3) The Apprenticeship Acts of the Dominions should make it an indictable offence either for employers to seduce or knowingly employ an absconding apprentice, or for apprentices to abscond. For older lads the question of a shorter period of apprenticeship than three years might be considered desirable.

Employers are now at liberty to sue the lads (through their Guardian) for breach of contract, and to recover damages from the banked wages. One case of this kind would be an admirable deterrent or object lesson for future parties.

On a future occasion the parents could be induced to authorise compensation or a fine being deducted from the banked wages in the case of a boy absconding or otherwise breaking the terms of his agreement.

- (4) Some of the employers were too kind at first. A Christmas box or bonus would prove a far greater incentive to work than too much kindness or an immediate large increase in wages. Some of the original masters did not quite understand the boys, who did splendidly on being removed elsewhere.
- (5) All those boys who had been under discipline in the Territorials, as Post Office Messengers, or in Scouts' and other Brigades;

and those who had been in shops and offices did well. Boys who stoop or slouch are unlikely to prove successful on colonial farms.

- (6) The New Zealand Government's policy of Nominated Passage requires to be made definite, so that all satisfactory immigrants on the land can be certain that they can get their friends and relations out to them at fixed rates (provided the latter are approved by the High Commissioner or his representative) on showing that they have permanent employment to go to which cannot be filled with local labour, and that the nominator is able to support them should they fall sick or out of work. The privilege of nomination is a great incentive to perfection, but it is not so in the present indefinite position of each case being left to the consideration of the Immigration Department.

Training farms conducted on colonial lines are a pressing need all over England to avoid the necessity of apprenticeship for older lads, to test applicants about whose likelihood to prove a success there might be some doubt, and to reconstitute those who have deteriorated by periods of starvation and hardship.

#### FUTURE OF THE MOVEMENT.

The Committee of Managers of Boys' Clubs and other social workers who have the experiment in hand, place considerable stress on the question of apprenticeship. Two or three true Imperialists (in deed, not in word only) are willing to advance the money for the fares and outfits of parties of lads as soon as the various Colonial Governments inaugurate a similar system of apprenticeship, which is in the interest of the boys and their employers alike. If this be conducted by the Labour or other interested Department of the State the lads are assured of fair wages, gradually increasing, being paid into the bank, constant employment, good treatment, and thorough instruction in all that they need to know to start on their own account in a few years' time. The employers do not feel that by taking extra trouble in teaching a boy they are likely to lose his services in the immediate future.

A similar experiment was tried by the Government of Ontario in July of 1912, but we think it best to defer criticism until the lads have been out there a year. It will be sufficient now to state that the Government there have already promised to place out and look after 500 similar lads if sent this year.

Three States in Australia now offer half rates of fares to suitable town lads proceeding to farms, but they have not instituted any system of apprenticeship. New South Wales offers suitable English town boys three months' free training on a "Dreadnought" farm near Sydney, and the other two States of the Commonwealth are very favourable to the idea. South Australia is, in fact, contemplating the passage of a Bill to enable her Government to take similar action in apprenticing lads.

In Canada, the Governments are carefully considering the matter, but the difficulty of fares is a very real one. If a boy can be sent to Australia for £8, he and his friends will be disinclined to pay double that amount for him to reach the Western and proportionate rates for the other Provinces. Both the Dominion and Provincial Governments must now realize the effect of the competition for immigrants by the offering of assisted passages on the part of the Australian Governments, and it seems as though it would only be a matter of time before Canada offers some assistance in fares with, if possible, a uniform rate to all the Provinces of that vast country.

Although the results of the experiment are highly satisfactory, they should be far surpassed in the future. Had the present information been available for selecting and placing the first party, especially as regards age the question of "mates" not being placed together on the same farm, and the most suitable types of lad, there would probably have been only two names in the second schedule, while it is possible that the third list would have been abolished. It should, therefore, be easy to guarantee 95 per cent. or more of successes in the future parties to New Zealand and Australia.

Town boys have come into their own at last. Their rural abilities have been proved. Their virtues, energy, and other excellent qualities, despite many disadvantages of environment, are now realised overseas. The experiment above referred to is another proof of the old adage that "an ounce of fact is worth more than a ton of theory."

#### SELECTION OF LADS.

In order that lads may not be disappointed at the life after arrival overseas, the Committee above referred to have printed the following note, which cannot be said to err on the side of over attractiveness, on the back of each form of application :—

All applicants must understand that :—

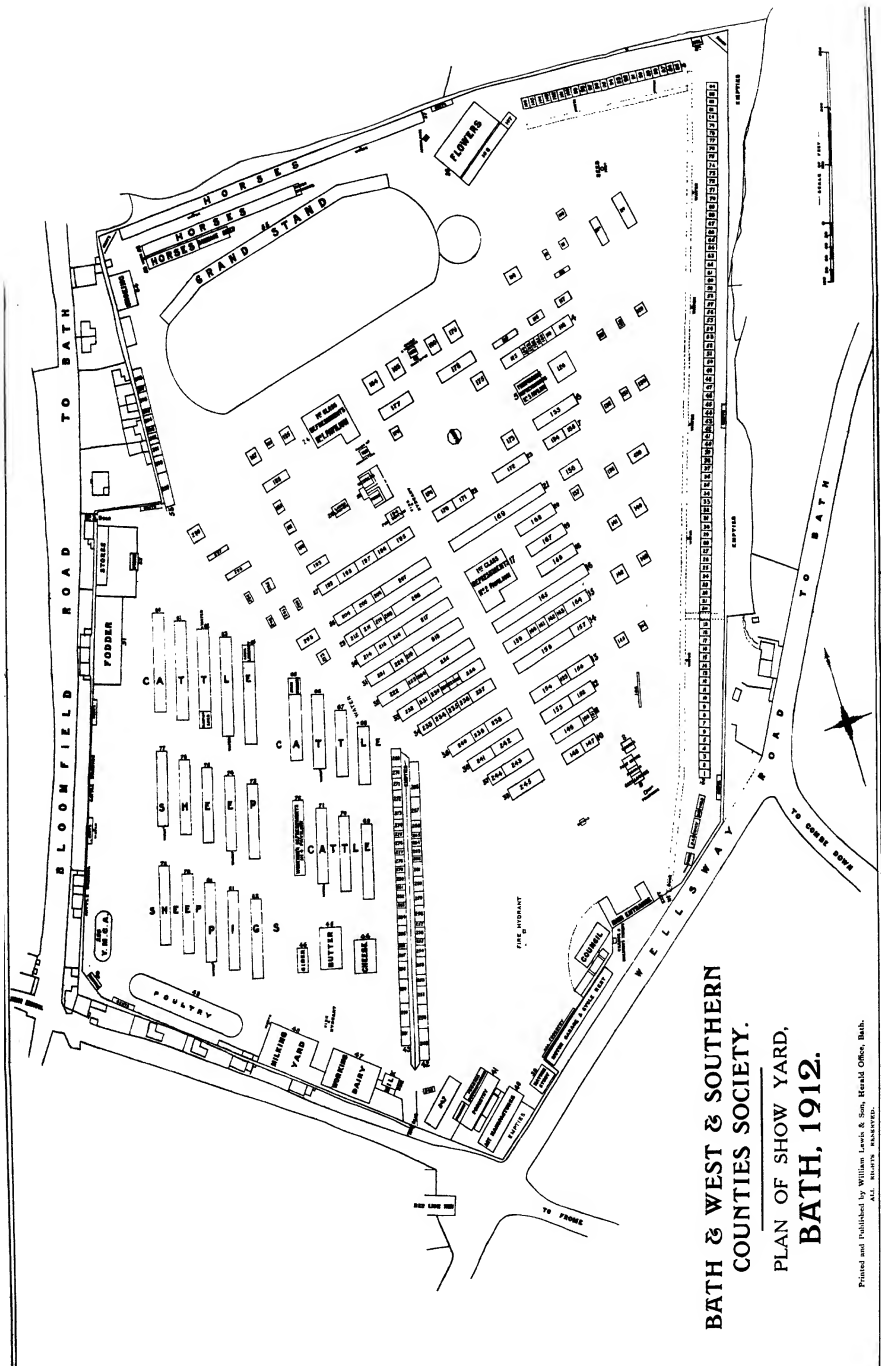
- (1) Only farming work is available for lads proceeding to the Colonies, but farming offers by far the best prospects for the future of the lads.

- (2) The work will be found hard, dull and monotonous, the hours long, and Sunday work unavoidable, and the lads will have to do house work when required.
- (3) The life is lonely, the neighbours are often miles apart, and there are no lights, streets, places of amusements sometimes within 100 miles.
- (4) The movement for migrating lads being in its infancy, those who apply and are selected must remember they have the good name of town lads to keep up and must make a success of the experiment.
- (5) The lads will have to repay all the money expended on their fares and outfits, and will have to accept low wages during the first year or so of their farm training. Where possible the wages (except 1s. a week pocket money) will be banked for the lads apprenticed. The fares for lads vary in the different Colonies, but are between £7 10s. and £12.
- (6) Although the food and prospects are good, only willing hard workers succeed, but permanent jobs and good treatment will be guaranteed to all who are sent out.
- (7) The Committee does not guarantee to emigrate any particular applicant.
- (8) Lads will only be assisted to those Colonies where the Governments undertake to have their interests safeguarded, and the date of their departure will be determined by the Official Representative of the Colonies in question. It will not, however, be for a few months, as negotiations are still proceeding, and, even after they are completed, berths on steamers are booked a good way ahead. Meanwhile lads should save all they can towards the cost of fares and outfits in case they are selected to go.
- (9) Lads who stoop or slouch, or have to wear glasses cannot be placed on farms overseas, and those who are under 5ft. 2in. should not apply. Cigarette smoking is a disqualification, but pipe smoking is allowed. Those who are unemployed should apply to their Local Distress Committees, by whom parents' guarantees are accepted. Assistance in guarantees can be given in special cases.
- (10) The outfit should include at least two suits, one jersey, two pairs of boots, one pair of slippers, two sets of woollen undergarments, four shirts, soft felt hat and cap, braces, soft collars, ties, handkerchiefs, and hair, tooth, clothes and boot brushes. For New Zealand and Australia, a canvas overcoat (rainproof), two blankets, two towels, and two pairs of dungaree trousers are also needed, and in Canada a warm overcoat and two sets of overalls (trousers) are required.

NOTE.—The clothing should be fully big, as lads grow rapidly on the voyage and overseas. A wooden box, iron clamped, is better than either a tin box or a kit bag. The cost of a full outfit for lads who have nothing suitable is about £4 10s.

- (11) The advantages and drawbacks of all the Colonies are about equal. Canada has the coldest winter but is nearest to England, and has vast areas of free land. Lads can take up land there five years after they arrive, and five years later can have their farms in good order if they work hard. South Africa does not require any unskilled labour at present. Australia is the next nearest country. Land is fairly





# **BATH & WEST & SOUTHERN COUNTIES SOCIETY.** **PLAN OF SHOW YARD, BATH, 1912.**

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cheap there, but the climate is hot. New Zealand is the furthest away, the land is the most expensive, but her climate is the most perfect.

- (12) The names of successful and (if any) unsatisfactory lads will be published.

#### THE LESSONS FOR ENGLAND.

There are many things we could learn from our oversea sister nations, especially the "Britain of the South," but none would be more useful than this systematic placing out of town lads on farms under proper safeguards and official supervision. The experiment has also shown both how the Dominions can supply their labour needs without depopulating our rural areas, and how we, too, may supply some of our labour requirements from the excellent but surplus young labour in the towns. The British Labour Exchanges would serve as centres for apprenticeship in the rural districts.

The Boys' Country Work Society, of 7, John Street, Adelphi, London, W.C., has done much to bring the town lads and the rural areas of England into closer union, and it only needs a local correspondent in each village to make the work a national one.

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#### VIII.—THE SOCIETY'S EXHIBITION AT BATH.

The Society's 1912 exhibition at Bath was opened on Wednesday, May 22, and closed on Whit-Monday, May 27.

A plan showing the situation and arrangement of the yard faces this page.

#### THE INAUGURATION.

A combination of circumstances rendered the 1912 Show more than ordinarily notable, for it was not only held in the Society's birthplace, but also, for the first time, within the enlarged area of the City, whilst, by a kindly and graceful act, the citizens of Bath selected as their Chief Magistrate for the year the permanent official representative of the Society. These circumstances imparted an unusual element of interest to the Show inauguration proceedings, which took place on Wednesday, May 22nd.

The Society's Council, having by formal resolution, invited the Mayor (Alderman T. F. Plowman, J.P.), to inaugurate the Show, his Worship, accompanied by the Lord Mayor of Bristol (Mr. F. Wills), was present in full state, attended by the Town Clerk, the Aldermen and Councillors, the two Parliamentary representatives of the City, the Corporation officials, and the members of the Local Executive Committee.

His Worship was met at the entrance to the Show Yard by the President (the Marquis of Bath), and the Society's Council and Stewards.

The President, having formally greeted his Worship, made some humorous references to the absence of the Secretary, who, for the first time, he said, had vanished into thin air. His lordship proceeding, said that the city had been closely linked by bonds of affection with the Society, and they were always glad to find themselves within its precincts. He need not say that they looked forward this year to a repetition of their previous experiences in Bath, and to a most successful show. It had been said that agriculture was not enterprising enough, but in that showyard they would find all the developments which human ingenuity could contrive. And he ventured to hope that in the course of the exhibition it would be his privilege to take the Mayor round the various departments of the yard in order to afford any needed explanation to his Worship. Everything he found would, he trusted, interest him. It was his duty and his privilege now to welcome the Mayor officially to their exhibition and to ask him to open it. He would also add on that occasion a most cordial welcome to the Lord Mayor of Bristol, who had been so kind as to grace that ceremony with his presence. He would not detain them by entering into any details regarding the exhibition; he had no doubt his Worship would have an opportunity to see for himself, but he would, in concluding, congratulate the Mayor most heartily upon the position which he occupied, a position which they all knew was only held by those who had won the esteem, the regard, and the confidence of their fellow citizens. He then called upon the Senior Yard Steward (Mr. C. L. F. Edwards), who had kindly undertaken to represent the Secretary.

Mr. Edwards having read the resolution passed by the Council directing the secretary to request the Mayor of Bath to inaugurate the exhibition, added: "I have only to report further that the Secretary received a letter from the Mayor cordially accepting the invitation."

The Mayor, in response, addressing the President and others present, said:—As I look round I begin to mistrust my own identity.



*Photo by*

*Messrs. Lambert & Lambert, Bath.*

**ALDERMAN T. F. PLOWMAN, J.P.,**

Secretary of the Society since 1882 and Mayor of Bath in 1912,  
when the Show was held in that City.

(Reproduced by desire of the Journal Committee as a memento of a  
unique conjunction of offices).



The surroundings seem familiar, but these habiliments (referring to the Mayoral robes) are not what I have been accustomed to wear in a Show Yard, and it is borne in upon me, too, that I am facing the wrong way. I look across to the Secretary for directions (I know he is usually in attendance on these occasions) but I see him not. And then I remember that, when the Bath and West Council directed the Secretary to request the Mayor of Bath to inaugurate this show, the Secretary at once asked for leave of absence during the ceremony, and that this was cheerfully granted. I may explain for the information of those who may be unacquainted with all the circumstances that the request was not due to any lack of cordiality between the two officials in question but solely to physical hindrances.

But, though the Secretary may be absent, the Mayor is present, and I can assure you, my lord, that speaking for the citizens of Bath, it is a great pleasure to us to have the show of the old society taking place once more within our boundaries, and, speaking for my Corporation, we appreciate the honour the Society's Council has done us in asking the Mayor to inaugurate the show. I may say that this is by no means my first visit to one of your shows, in fact, to be absolutely accurate, this is the 30th Bath and West Show at which I have been present. I cannot think of this without feeling deeply thankful to a merciful Providence for vouchsafing to me the health and strength that have rendered this possible.

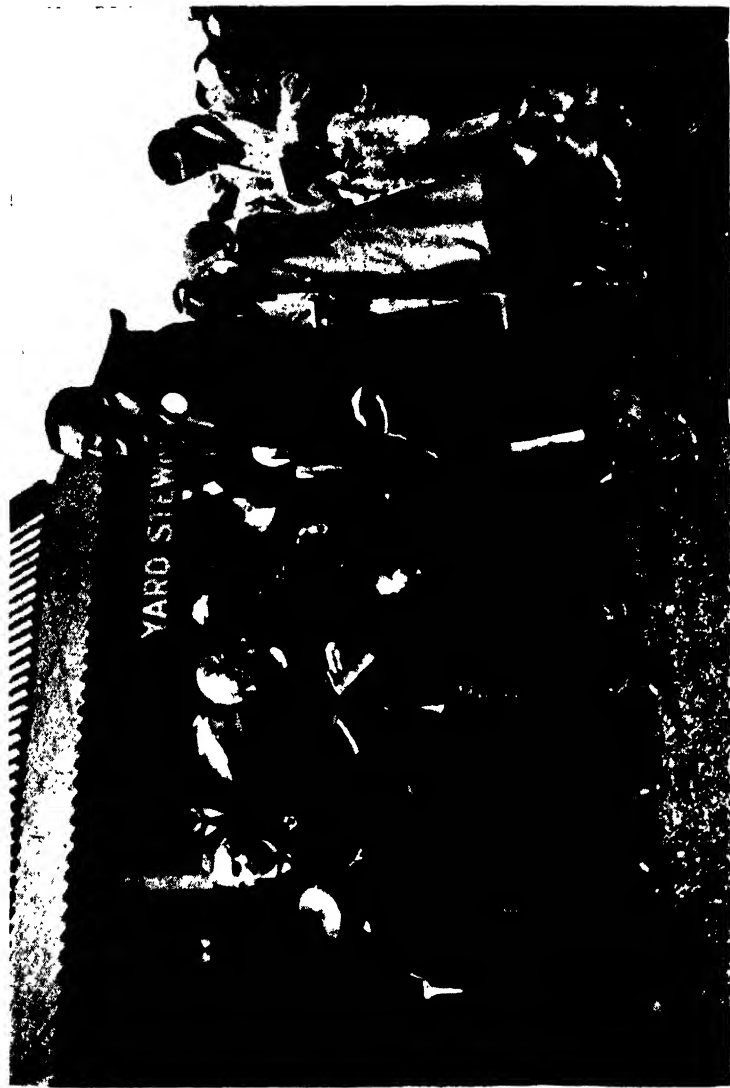
I learn on good authority, namely, your Secretary, that this is the largest show ever held in Bath. This is a good sign, for it indicates that the Society, like the city, is still growing, and that old age does not mean lack of vitality or decaying strength. Beyond this, I find the Society's area of operations has been enlarged by the addition of new features since the show was last held here. The fresh developments are worthy of the Society's old traditions. The introduction of nature study shows an appreciation of educational requirements, while the forestry section is evidence of a sense of the growing importance of making the most of our woods and forests. The addition of classes for dairy herds is a useful incentive to agriculturists to devote care and skill to the whole herd and not merely to individual animals. Then, for the first time, recognition is given to that wonderful embodiment of intelligence and docility, the sheep dog. I need not dilate upon the other standing features of your present exhibition or upon the many other useful directions, apart from the show, in which your energies are displayed.

We, as a city, have also adopted a policy of expansion, seeking

“fresh fields and pastures new,” and this has resulted since the last show in a considerable addition to our municipal boundaries. In November last we added 20,000 more souls to our population, and so the honour falls to me to-day to welcome the Society as the first Mayor of “Greater Bath.” This brings me to a point which I feel, in view of the kindly references already made to it, I cannot entirely overlook. The citizens of Bath are proud of the fact that the Society was born in their midst and has lived happily with them for nearly a century and a half. As the city has grown in size and importance so has the Society. In the words of an old song popular in the days of my youth—“we’ve lived and loved together through many changing years.” Now the city desired to do something to emphasize this, something that years hence might be quoted as evidence of the happiness of this relationship, which for nearly 150 years has existed between the two bodies, and so they went so far as to place the Mayoral chain round the neck of the Society’s Secretary. The citizens were willing to put up with all the shortcomings of the latter for the sake of the sentiment which this combination of offices conveyed. So far as I can ascertain this is a combination unique in the annals of a city, unique in the annals of agriculture. It may be taken, I think, as indicative of real affection and illustrates a quotation which, when I was young and susceptible, I thought was the most beautiful definition of love I had ever heard. It ran : “Two minds with but one single thought, two hearts that beat as one.” To-day the one dominating thought in the mind of the city and of the Society alike finds expression in the desire of each for the other’s welfare, and the hearts of both are beating in sympathetic unison, as we metaphorically grasp hands on Odd Down. To complete the analogy, I can safely say that the mind of the Mayor is attuned to that of the Secretary and the heart of the Secretary beats in response to that of the Mayor.

I cannot conclude without expressing my sense of the honour you, my Lord Mayor of Bristol, have done the City, the Society, and myself in coming here to-day. We cordially appreciate it for more reasons than one. In the first place you represent a sister community, and there are bonds of attachment between us which one is always glad to see strengthened, and you, my lord, by visiting us to-day, have done much in that direction. Beyond that you are as an agriculturist acquainted with all that a showyard represents, and so upon this ground also we appreciate your presence.

And now, as the Secretary is expected back every moment, his leave of absence being about to expire, I have the honour to announce that this exhibition is duly inaugurated.



THE PRESIDENT WELCOMING THE MAYOR.  
(Reproduced by kind permission of the "Bath Herald.")





Having thanked the Mayor on behalf of the Society for the honour he had done them, the President said he had in his hand two little volumes (handsomely bound catalogues) of which his Worship might possibly have seen the like before. Possibly he might have had something to do with their preparation. Such volumes they were accustomed to present to the Chief Magistrate of the City and the Mayoress, and he did so on this occasion with the greatest of pleasure. In addition he would like to express the Society's deep gratitude to the Mayor's fellow townsmen for the reception they had once again given the Society. They were no strangers to the cordiality which Bath always extended to them, and he could assure the citizens they appreciated to a very grateful extent the hospitality and the generous kindness they had shown them whilst the preparations for the show were being made. He alluded especially to the Local Committee, but, of course, he also included the whole city. The President then handed the volumes to the Mayor and Mayoress.

Mr. Egbert Lewis, in the absence of the Chairman (Alderman Silcock) of the Executive Committee, who was away from Bath on account of his health, thanked the Marquis of Bath for his kind remarks with regard to the work done by the Local Committee in making preparations for the Society's visit. He thought they would all agree with him they had on that occasion found a most excellent site for the show, and all they wanted was fine weather with a good attendance to complete its success.

Once more addressing the Mayor, the President said he had no doubt his Worship's experience in life had taught him that when the guiding hand was absent they were apt to run wild. On that occasion he must plead guilty to having done so. It occurred to some of them recently that they could not allow that exceptional occasion to pass without expressing their feelings in regard to the fact that the Secretary of that Society was occupying the dignified position of Mayor of the City of Bath. They knew full well the esteem and regard in which he was universally held by his fellow townsmen. They knew, too, that he had attained to the Chief Magistracy with the cordial approval of the whole body of citizens, who had desired to make this acknowledgment of his merits. Perhaps they would allow him to say that, great as might be their regard for their Mayor, it could not exceed the affection with which his old friends of the Bath and West Society had always regarded their Secretary. His Worship had alluded to the fact that he believed, according to ordinary calculations, he had occupied that position for a full generation. They had had during that time the inestimable

advantage, might he say of a faithful servant of the Society, and of a true and cheerful friend of all the individual members of it. What he was doing now, and he hoped and believed it was unexpected by his Worship, had, he was glad to be able to tell him, the cordial and enthusiastic approval of every member of the Council who was present on that occasion. It was true that proceedings must be, from his point of view, somewhat informal, but he was glad to think that they were absolutely at one in desiring to give Mr. Plowman some tribute of that occasion—some present which they trusted would be—not a reminder, for that was unnecessary—something for him to look upon as a visible sign of the universal affection in which he was held by the Society. They also trusted that Mrs. Plowman, who they were so glad to see present, would value it, for he assured the Mayor and Mayoress that the gift came from their hearts.

The President then handed to the Mayor a handsome solid silver salver.

The Mayor said he had been indeed taken aback. The secret had been so well kept that he had not the slightest idea such an honour was intended for him. They had generally confided in their Secretary and told him everything, but that day he found himself for the first time with the trying experience of something being done without his being previously made aware of it. He could not thank them adequately because he could not tell them all he felt. But he sincerely trusted they would believe that he was feeling not only very grateful for that memento, and all that it conveyed, but also for thirty years' happy memories in connection with the Bath and West Society, for those years had been the happiest of his life. That handsome gift was something he would treasure as long as he lived, and he was sure his children would treasure it after him. Whether as Mayor or as Secretary, there was nothing he was ever more afraid of than the introduction at a meeting of a subject not on the agenda paper, but it would be difficult for him, even if he had the power, to rule anyone out of order on that occasion. He thanked them from the bottom of his heart for that addition to the great kindness they had always shown him. They might be quite sure that so long as he enjoyed their confidence and had health and strength, it would be his duty and pleasure to work for the benefit of the old Society which he loved so much.

Cheers for the Mayor and Mayoress, the President, and for the Lord Mayor of Bristol concluded the ceremony.



### AFTER THE INAUGURATION.

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# ENTRIES.

The following is a comparative statement of the entries in the Stock and Produce Classes in 1891, 1900, and 1912:—

	Bath, 1891.	Bath, 1900.	Bath, 1912.
<b>HORSES :—</b>			
Agricultural .. .. .	52	52	47
Hunters, Hacks, Ponies, Harness, Jumpers, &c. .. .. .	121	172	321
	— 173	— 224	— 368
<b>CATTLE :—</b>			
Devons .. .. .	53	32	35
South Devons .. .. .	0	0	20
Shorthorns .. .. .	64	89	74
Herefords .. .. .	37	45	53
Sussex .. .. .	35	22	23
Jersey .. .. .	226	148	101
Guernsey .. .. .	69	72	53
Aberdeen-Angus .. .. .	0	0	40
Kerry and Dexter .. .. .	0	33	41
Dairy .. .. .	0	53	46
Red Polled .. .. .	0	22	0
	— 484	— 516	— 486
<b>SHEEP .. .. .</b>	234	141	234
<b>PIGS .. .. .</b>	127	135	135
<b>POULTRY .. .. .</b>	429	349	595
<b>FARM PRODUCE :—</b>			
Cheese .. .. .	121	130	79
Cream Cheese, Butter and Cream .. .. .	123	138	101
Cider .. .. .	13	96	53
Wool .. .. .	8	0	0
	— 265	— 364	— 233
	1,712	1,729	2,011

A list of the awards, names of the Judges, etc., will be found on pages *i* to *lxxxvii* of the Appendix to this volume.

# PRIZES.

The money prizes in 1912 were contributed as follows :—

	£	s.	d.
Bath and West and Southern Counties Society .. .. .	2,778	15	0
Bath Local Committee .. .. .	100	0	0
Somerset County Agricultural Association .. .. .	100	0	0
Somerset Agricultural Instruction Committee .. .. .	44	0	0
Coalowners of Somerset (per E. M. Hepple, Esq.) .. .. .	6	0	0
Residents in the Counties of Somerset, Wilts and Gloucester .. .. .	60	0	0
Shire Horse Society (or Medal) .. .. .	15	0	0
Hackney Horse Society (or Medal) .. .. .	5	0	0
Lord Tredegar .. .. .	12	0	0
Devon Cattle Breeders' Society .. .. .	10	0	0
South Devon Herd Book Society .. .. .	17	0	0
Shorthorn Society .. .. .	20	0	0

Dairy Shorthorn (Coates's Herd Book) Association ..	£10	0	0
Hereford Herd Book Society .. ..	20	0	0
English Aberdeen-Angus Cattle Association ..	10	0	0
English Jersey Cattle Society (or Medal) ..	29	0	0
Royal Jersey Agricultural Society .. ..	10	10	0
English Guernsey Cattle Society .. ..	28	0	0
English Kerry and Dexter Cattle Society ..	15	0	0
Cotswold Sheep Breeders' Society .. ..	11	0	0
Devon Longwoolled Sheep Breeders' Society ..	10	0	0
Kent or Romney Marsh Sheep Breeders' Association	17	0	0
Southdown Sheep Society .. ..	17	0	0
Hampshire Down Sheep Breeders' Association ..	10	0	0
Oxford Down Sheep Breeders' Association ..	10	0	0
Dorset Horn Sheep Breeders' Association ..	15	0	0
Dorset Down Sheep Breeders' Association ..	17	0	0
Exmoor Horn Sheep Breeders' Association ..	17	0	0
British Berkshire Society .. ..	5	0	0
Large Black Pig Society .. ..	12	0	0
	£3,431	5	0

Gold, silver and Bronze medals were also given by the Society, and medals or plate by the Shire Horse Society, the Hunters Improvement Society, the Hackney Horse Society, the Polo and Riding Pony Society, the Sussex Herd Book Society, the Aberdeen Angus Cattle Society, the English Aberdeen Angus Cattle Association, the English Jersey Cattle Society, B. de Bertodano, Esq., the English Kerry and Dexter Cattle Society, the Southdown Sheep Society, the National Pig Breeders' Association, Messrs. Chas. and Thos. Harris & Co. (Ltd.), the Somerset Agricultural Instruction Committee, and the Poultry Club.

#### IMPLEMENTS.

The following is a comparative statement of the number of feet run of shedding provided for Implements, Machinery, etc., and of the number of square feet of open space occupied by exhibits unsuitable for Shedding :—

	Bath, 1891.	Bath, 1900.	Bath, 1912.
Machinery in Motion .. .. feet run	1,106	1,022	1,484
Agricultural and General Implements and Vehicles } .. ..	5,562	3,676	3,780
Seeds, Cattle Foods, Artificial Manures, &c. .. .. } .. ..	913	1,068	1,240
	7,581	5,766	6,504
Open space for Farm and Hor- ticultural Buildings, &c. .. } ..square feet	12,725	19,475	32,458
	20,306	25,241	38,962

## MISCELLANEOUS DEPARTMENTS.

Nature Study and Forestry exhibitions (particulars of which are given on pages 80 to 84) were again noteworthy features of the Show, and excited much interest.

Near the Forestry Gallery demonstrations of Tree Pruning and Grafting were given each morning by Mr. J. Ettle, F.R.H.S.

A fully equipped Working Dairy, in which the Butter-making Competitions were held, formed as usual, a prominent feature of the show. Here various dairy implements and appliances, including power and hand separators, were shown at work, and the best methods of making butter and clotted cream were practically demonstrated.

There were also Bee-keeping Demonstrations, and Shoeing and Milking Competitions, the following being a comparative statement of the entries :—

				Bath, 1891.	Bath, 1900.	Bath, 1912.
Butter-Making	..	..	..	145	136	182
Shoeing	..	..	..	50	106	62
Milking	..	..	..	0	24	14
				195	266	258

Musical performances were given daily by the Band of the Coldstream Guards, under the conductorship of Lieut. J. Mackenzie Rogan, M.V.O. Mus. Doc.

The usual Sunday service, at which there was a large attendance of herdsmen and others engaged in the yard, was held in the Working Dairy. The sermon was preached by the Archdeacon of Bath, and the service was conducted by the Society's Chaptain (Rev. A. T. Boscawen), who was assisted by the Rev. C. E. Doudney, Vicar of St. Luke's, in which parish the Show Yard was situated, and whose organist and choir rendered efficient help in the musical portion of the service. Lord Wynford, one of the Society's Stewards of Horses, followed in the footsteps of his late father, who held a similar stewardship, by reading the lessons.

Reference must again be made to the kindly thought of the Young Men's Christian Association, who, having space in the Show Yard placed at their disposal by the Stewards, provided a reading and writing tent for the special use of those engaged in looking after the stock, etc., in the yard. The Association gave little enter-

tainments and addresses here in the evening, and these and the other advantages provided were thoroughly appreciated by those for whom they were intended.

#### ATTENDANCE.

The first of the following tabular statement refers to the number of persons who paid for admission to the Show Yard, and the second to the admission receipts.

Admissions.				Rochester 1910.	Cardiff, 1911.	Bath, 1912.
At 7s. 6d. (Season Tickets)	..	..	..	217	161	129
„ 2s. 6d. .. .. .	..	..	..	5,273	15,285	12,572
„ 1s. .. .. .	..	..	..	17,815	38,413	37,374
Children, &c. .. ..	..	..	..	2,692	2,942	4,703
				25,997	56,801	54,778

Receipts.				Rochester, 1910.			Cardiff, 1911.			Bath, 1912.		
				£	s.	d.	£	s.	d.	£	s.	d.
Show Yard	..	..	..	1,698	11	0	3,965	4	0	3,601	3	6
Horse Ring Stand	..	..	..	202	1	3	417	4	0	333	19	0
Working Dairy	..	..	..	2	4	9	8	10	6	4	17	9
				1,902	17	0	4,390	19	0	3,940	0	3

### IX.—THE MILK-TEST CLASSES AT THE BATH EXHIBITION, 1912.

*By Dr. J. A. Voelcker, M.A., F.I.C., Consulting Chemist to the Society.*

In 1912, 16 cows, or two in excess of those which competed at Cardiff in 1911, came into competition for the prizes awarded in Classes 112 and 113.

In Class 112, for cows under 900 lbs. live weight, there were eight competitors, all being Jerseys.

In Class 113—for cows over 900 lbs. live weight, there were also eight competing cows, two of these being Shorthorns, two Lincoln Red Shorthorns, three Jerseys, and one Cross-bred.

The cows were all milked clean on the evening of Thursday, May 23rd, after which they were weighed and divided into their proper classes.

The milk of Friday, May 24th, both morning and evening, was taken for the purpose of the test, the conditions as regards quality demanded being the same as in previous years.

Analyses of the different samples showed that all the eight cows in Class 112 (light-weight) qualified, but in Class 113 (heavy-weight)



there were four disqualifications on account of deficiency of quality of milk. These were Nos. 383, 556, 557 and 558. Two of these cases are somewhat peculiar or unusual. In the first case it was the disqualification of a Jersey cow because of the morning milk falling below the 3 per cent. standard of fat. In the second case, that of No. 558, a Lincoln Red Shorthorn, the unusual circumstance was met with that the evening milk was lower in fat than that of the morning. I took particular care to enquire whether there was anything to possibly account for the Jersey cow having shown such an unusual result, and, as the result of my enquiries, I ascertained that the cow was one of a very nervous nature, and was apt to "hold her milk up." There is little doubt that the unusual surroundings of the Showyard had upset this cow, and the "holding up" of her milk would tend to keep back the "strippings," which—as is well-known—are the richest in fat. To this fact must accordingly be attributed the resulting disqualification. It will be noticed that in the evening's milk a much higher fat percentage was shown.

But for these two disqualifications, the cows concerned would have obtained respectively first and second places, their milk yield being considerably in excess of that of any of the other cows.

In Class 112 the 1st Prize was gained by Mr. J. Brutton's Jersey, "Irish Lass," and the second place by Mr. J. H. Smith-Barry's "Post Obit," the same owner's "Mignonette" securing the third award. "Irish Lass" had previously obtained the second prize in its class in a similar competition at the R.A.S.E. Show at Liverpool in 1910, and at the same Society's Show in 1911 at Norwich had obtained a "H.C."

"Post Obit," while competing without success at the Bath and West Show at Cardiff in 1911, secured, later on, at the R.A.S.E. Show at Norwich in the same year, the 1st Prize, beating "Irish Lass" who now, however, turned the tables upon her by giving a higher yield.

In Class 113, the 1st Prize went to Mr. G. W. Stark's "Dewspot," this cow, by the aid of lactation points, beating Mr. J. Evens' Lincoln Red "Rosemary," the third place being assigned to Earl Cadogan's Jersey cow "Ghezireh," which had obtained the H.C. both at Liverpool in 1910 and at Norwich in 1911.

The yield of the prize-winners, as already observed, was very considerably below that of Lord Rothschild's Jersey cow, "Twylsh 11th," which, but for the small deficiency of fat, would have easily gained the first award.

Full particulars of the tests, analyses, etc., are given in the accompanying table.

## MILK-TEST CLASSES.

No. in Catalogue.	Owner and Cow.	Breed.	Age.	No. of Days in Milk.	Quantity of Milk.		
					Morning.	Evening.	Total.
	CLASS 112. Cows under 900 lbs. live weight.		Years		lbs. oz.	lbs. oz.	lbs. oz.
375	Mr. J. Brutton's "Irish Lass" .. ..	Jersey	7½	77	28 12	22 8	51 4
372	Mr. J. H. Smith-Barry's "Post Obit" ..	"	12	92	27 8	21 2	48 10
371	Mr. J. H. Smith-Barry's "Mignonette" ..	"	4½	333	17 2	13 6	30 8
374	Mr. J. Brutton's "Commodore's Golden Lily" .. .. .	"	7	72	20 6	16 0	36 6
552	Mrs. Evelyn's "Sweet Daisy" .. ..	"	4½	113	20 4	11 8	31 12
376	Earl Cadogan's "Cherry Queen 3rd" ..	"	6	91	17 12	14 8	32 4
387	Dame Smyth's "Lisette 2nd" .. ..	"	6	103	17 12	12 10	30 6
553	Mrs. Evelyn's "Bullfinch" .. ..	"	5	161	12 0	8 10	20 10
	CLASS 113. Cows 900 lbs. live weight or over.						
555	Mr. G. W. Stark's "Dewspot" .. ..	Cross	8	143	23 8	17 14	41 6
551	Mr. J. Evens' "Rosemary" .. ..	Lincoln Red	8	17	26 14	23 0	49 14
377	Earl Cadogan's "Ghezireh" .. ..	Jersey	7	85	23 6	16 8	39 14
386	Mr. J. H. Smith-Barry's "Heywood Bluebell" .. .. .	"	6	116	18 14	13 8	32 6
383	Lord Rothschild's "Twyliah 11th" ..	"	6½	84	39 2	23 0	62 2
558	Mr. J. Evens' "Burton Hollyhock" ..	Lincoln Red	9	85	29 2	23 8	52 10
557	Mr. J. Batstone's "Cowslip" .. ..	Shorthorn	5	36	19 10	17 14	37 8
556	Mr. J. Batstone's "Beauty" .. ..	"	5	49	17 2	14 8	31 10

## MILK-TEST CLASSES.

Quality of Milk.				No. of Points for Milk.	No. of Points for Lactation.	Total No. of Points.	Awards.
Morning.		Evening.					
Fat.	Solids.	Fat.	Solids.				
per cent.	per cent.	per cent.	per cent.				
3.70	12.83	5.90	15.21	51.25	3.70	54.95	First Prize.
4.00	13.22	4.10	12.89	48.62	5.20	53.82	Second Prize.
3.50	12.68	5.00	14.03	30.50	12.00	42.50	Third Prize.
3.65	12.96	5.50	14.88	36.37	3.20	39.57	Reserve.
4.90	14.31	6.80	16.43	31.75	7.30	39.05	
4.35	13.94	6.10	15.68	32.25	5.10	37.35	
5.00	14.74	4.60	13.94	30.37	6.30	36.67	
5.70	15.28	5.00	14.23	20.62	12.00	32.62	
3.50	12.79	4.00	13.17	41.37	10.30	51.67	First Prize.
3.00	12.12	3.55	12.63	49.87	nil	49.87	Second Prize.
3.85	12.87	5.70	14.76	32.87	4.50	44.37	Third Prize.
5.00	14.12	4.30	13.20	32.37	7.60	39.97	Reserve.
2.75	12.15	4.80	14.12	62.12	4.40	66.52	Deficient in quality.
3.30	12.40	2.85	11.67	52.62	4.50	57.12	Deficient in quality.
1.45	10.79	2.75	12.16	37.50	nil	37.50	Deficient in quality.
2.40	11.41	3.00	11.64	31.62	9.0	32.52	Deficient in quality.

## X.—THE BUTTER-TEST CLASSES AT THE BATH EXHIBITION.

*By Ernest Mathews.*

Fourteen cows' out of an entry of seventeen competed for the English Jersey Cattle Society's Gold, Silver and Bronze Medals.

The animals were stripped on Thursday, May 23rd, at 5 p.m., the milk of the next twenty-four hours being taken. Separation took place after each milking on Friday, and Churning was carried out on Saturday, May 25th, the awards being published by 11 o'clock. The prizes were awarded as follows:—

				Days in Milk.	Weight of Butter. lbs. ozs.	Points.
Gold Medal	Mr. Bratton's <i>Irish Lass</i>	..	..	77	2 10½	45·95
Silver	„ Mr. Smith-Barry's <i>Post Obil</i>	..	..	92	2 4½	41·70
Bronze	„ Lord Rothschild's <i>Twylish 11th</i>	..	..	84	2 5½	41·65

The average of the animals tested is as follows:—

No. of Cows.	Days in Milk.	Milk. lbs. ozs.	Butter. lbs. ozs.	Ratio. lbs.	Points.
14	117	36 3½	1 13½	19·37	36·47

Five cows were entered for the prizes offered by the English Guernsey Cattle Society. The cows having been stripped on the evening of the 23rd, the first milking took place at 7 a.m. and the second at 5 p.m. on the 24th. The milk was separated after each milking, and churning took place on the 25th.

The prizes were awarded as follows:—

1st prize—Ithen Polly, 8118 ; owner, Sir Joseph H.B. D. Tichborne, Bart., with 44.25 points.

2nd prize—Hayes Golden Cherry 3rd, 6,900 ; owner, Sir Everard A. Hambro, K.C.V.O., with 33.75 points.

3rd prize—Deanie 16th, 8906 ; owner, J. Pierpont Morgan, with 31.50 points.

The arrangements made by the Bath and West Society were good, and my thanks are due to Mr. Clark, the steward of Butter Tests, and to others who assisted in the Trials.

## XI.—THE SOCIETY'S 1912 EXHIBITION OF CIDER.

*By E. W. Farwell, Steward.*

The entries of cider at the Bath Exhibition in 1912 numbered 53, as against 67 at Cardiff in 1911 and 37 at Rochester in 1910, the classification being the same in each case, with the exception that at Cardiff there were three additional classes for prizes offered by the Monmouthshire Agricultural Education Committee which accounted for eight out of the 67 entries.

Samples from each exhibit were submitted to Mr. F. J. Lloyd, F.C.S., for analysis, and five entries were disqualified in the dry classes for exceeding the maximum specific gravity of 1.015. If all exhibitors were careful to test the specific gravity by a standardised hydrometer there would be no fear of their entries being disqualified by being entered in a wrong class.

Mr. J. Ettle, F.R.H.S., of 37, Stanley Grove, Weston-super-Mare, was the Judge appointed by the Society, and he fulfilled his duties on the first day of the Show.

The exhibits in the dry classes afforded proof that it is possible to make a good dry cider, and the decision to fix the maximum specific gravity in these classes at 1.015 was evidently a wise one and is justified by results. The need for such classes is exemplified by Messrs. Davies & Shingley's entry in the old class, the specific gravity of which was 1.009. Although of excellent quality it was heavily handicapped in having to compete with the sweeter and richer ciders in the same class.

In the open classes there was nothing of very remarkable merit, the outstanding features being a predominance of tannin flavour and, considering the amount of residual sugar, high alcoholic strength.

The class for old cider contained some of the best cider in the Show, the exhibit of Mr. H. J. Davis calling for special mention.

Taking the exhibition generally, it was evident that the 1911 season's vintage, contrary to expectation, after the hot summer and the apparently good conditions under which the fruit ripened, though distinguished by its strength, was not of outstanding merit. This lack of distinction may have been caused either by the over-maturity of the fruit, by the comparatively high temperature during the greater part of the cider-making season, or by the irregular rate of fermentation; and it will be interesting to see whether any improvement takes place in the 1911 vintage on further maturity.

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## XII.—THE SOCIETY'S NATURE STUDY EXHIBITION AT BATH.

*By E. W. Farwell, Assistant Steward.*

This exhibition contained much interesting work which had necessitated very careful preparation and the expenditure of considerable time and effort. Some of the exhibits—such, for instance, as woodwork with special reference to gardening or farm implements, and arithmetical examples correlated with gardening—could not, however, be classified as strictly “Nature Study.”

In preparing an exhibit, it is well to bear in mind that Nature Study involves something more than merely collecting objects, painting or drawing from nature, diaries of things noted, or notes or essays taken after an object lesson in class. The admirable notes on the subject contained in the “Suggestions to Teachers” issued by the Board of Education should be carefully studied in order that the work may be placed and kept upon right lines.

True Nature Study involves :—

- (1) *Original observation* of natural objects ;
- (2) Description, including drawings and continuous records, of growth and change ;
- (3) Experiments on the heuristic method (*i.e.*, in the nature of enquiry) ;
- (4) Perception of cause and effect ;
- (5) Classification and arrangement.

The exhibit of the Bath Education Authority was submitted as a whole, individual schools being indicated by reference letters only. As this was a local exhibit, more interest would have been attached to it if the names of the schools had been given and the exhibits from each school grouped together.

Particularly good examples of the application of the principles mentioned above were found in School M. One pupil had followed the changes in a twig of Beech, had sketched successive stages of the growth and development of the bud, etc., and had written an interesting description of these changes. Other pupils had prepared Note Books of their own observations of plant growth.

School J showed some good collections of butterflies, eggs, shells, etc., with drawings of the same, but the work had not been followed through to a completion.

School Q showed an interesting model, drawings, photographs, and notes, under the heading “The Work of a River.”

Another school exhibited a good collection of minerals and fossils, collected during school excursions.

To the exhibits from the Somerset County Elementary Schools the same points of commendation and criticism apply. One of the best examples of systematic work (which, however, should rightly be classified as Practical Geography) was a coloured, raised model of a district, constructed at South Petherton School from observations made by the scholars and corrected with the aid of an ordnance map. Attached to the exhibit were various examples of the rocks, soil, plants, etc., found at spots marked on the relief map.

The Wiltshire Education Committee confined its exhibit mainly to illustrations of the work of school gardening, the specimens from Tisbury and Atworth, for example, indicating rural education rather than Nature Study. The exhibits from Hendon and Lydiard Tregoze, on the other hand, though small, were sufficient to show that they were working on the right lines.

Some very good work of a higher quality was shown by the Secondary Schools of Somerset. The true methods of Nature Study had been well grasped, particularly in the case of Shepton Mallet Grammar School, and Sexey's School, Blackford.

In another case occurred an example of plodding, painstaking effort, ill-directed and of little, if any, educational value. The pupils had laboriously counted the number of plants of different kinds in selected areas in various parts of a field, and had recorded the results as diagrams. No effort had been made to connect cause and effect, or to establish the reasons for the particular enquiry.

Speaking generally, it is evident that the work of Nature Study is rapidly extending in the schools, and that it evokes great interest. The first step—observation—is fairly well established so far as to secure the "open eye," and the subsequent stages will, no doubt, gradually follow.

In the group open to Field Clubs and private individuals was an admirable exhibit, submitted by Mr. F. de la Mare Norris, of Bath, including a simple apparatus used in the preservation of insects, together with actual specimens of preserved larvæ, the various parts of which were carefully described and named.

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## XIII.—THE SOCIETY'S FORESTRY EXHIBITION.

*By Godfrey Lipscomb, Steward.*

It is satisfactory to be able to report that the Society's Forestry Exhibition at Bath was generally considered to be the best yet held in connection with the Society. The excellent collections sent for exhibition were a proof of the very considerable trouble that various landowners and their agents and foresters had taken in order to help forward what is unquestionably a very useful educational movement, whilst there was no lack of interest on the part of the public in both the exhibits and the demonstrations of fruit and tree pruning. The thanks of the Society are due to Mr. Ettle, of the National Fruit and Cider Institute, Long Ashton, for the excellent way in which he carried out these demonstrations.

In the Forestry Exhibition, the Duke of Wellington was again awarded the gold medal in Class 1, his usual good exhibit winning in a strong class. Seeds, seedlings, wood sections, pruning specimens, specimens showing the effect of good and bad planting on the roots of young plants of larch and ash, and many excellent photographs were comprised in this exhibit.

Dame E. F. Smyth won the silver medal with a very carefully prepared and interesting exhibit of seeds, seedlings, pruning specimens, photographs, a collection of grubs, a drawing of a creosoting tank, and specimens of Japanese larch, planted December, 1906, and killed by drought in 1911.

Lord Stanhope took the bronze medal with a very good exhibit, comprising excellent photographs, seeds, specimens of wood in section, foliage, specimens of pruning and of damage to growing timber by various insects and larvæ—a good, well set-up exhibit, which must have entailed much care in preparation.

Miss Talbot had a small exhibit in the same class, comprising, among other things, a plan showing the method employed in planting up a large area of mountain land, and the steps taken to reduce the chances of damage by fire as much as possible; particulars of the cost were also given.

In other classes, boards, though still leaving a good deal to be desired, showed a marked improvement upon those of last year. Lord Carnarvon, as usual, sent excellent boards, and took the silver medal in all three classes for conifers. The Scotch specimen, which was very good and free from knots, was cut from a tree 80 years old, grown on strong loam, at an altitude of 400 feet.

Sir Thomas Acland also sent some very good boards, and his exhibit from Holnicote took the bronze medal.



Lord Carnarvon's larch boards were cut from a tree 80 years old, grown on sandy loam at a height of 350 feet.

Miss Talbot was awarded the bronze medal for larch boards.

The spruce boards from Lord Carnarvon's estate were good and clean; they were 98 years old, and were grown at a height of 350 feet on light sandy loam.

For hard woods Sir Thomas Acland obtained the first prize with some nice boards from Holnicote. He also sent several excellent boards from his Killerton estate, which, however, owing to some misunderstanding, were not quite the required size. Among them were some good oak boards cut from a tree 125 years old.

In the class for gates Lord Carnarvon took the first prize with a good gate, made of larch with oak head, Sir Thomas Acland winning the second prize with an oak gate from Holnicote. Dame Smyth was highly commended with a gate from Long Ashton. A feature of this gate was a cheap and simple device for strengthening it by means of a piece of angle iron fixed underneath the centre of the top bar, where the gate is usually weak. It was a good gate class.

Some fencing made from pit wire and larch posts was also shown by Dame Smyth, the wire running through the posts. This is a very strong and durable fence, costing a shilling a yard, and one very difficult to either damage or remove. It is therefore a suitable fence to place in a district where posts and rails or paled fencing would be likely to disappear very rapidly.

Sir Thomas Acland also had some interesting boards of various and uncommon woods in the non-competitive class.

The Marquis of Bath sent, among other exhibits, three exceptionally fine boards, remarkably large and clean, which, although not for competition, were awarded a silver medal. It is worth while giving details of these boards, as they attracted a good deal of attention. The elm boards were 11ft. long, with an average width of 4ft. 7in. They were cut from a hedgerow-grown tree, containing about 120 cubic feet of timber, and were grown on heavy clay soil at an altitude of 300 feet. The white poplar was a beautiful board, 11ft. long, with an average width of 3ft. It was cut from a tree that was supposed to have been planted about 1690, which measured 70ft. by 30in., quarter girth over bark. It was grown on cold, wet clay soil at an altitude of 450 feet. The silver fir was a board 11ft. long, with an average width of 4ft. 3in., cut from a tree about 120 years old, containing about 180 cubic feet of timber, and grown on green sand soil, at an altitude of 600 feet.

The Society was indebted to the Royal Botanic Gardens, Kew,

for an excellent exhibit, comprising photographs, some very good drawings of fungi and a collection of well set-up specimens of woods, seeds, etc., the whole, as usual, being under the charge of Mr. Dallimore.

The National Fruit and Cider Institute had a very good all-round exhibit of photographs, together with specimens illustrating cider disorders, grafting, showing the graft in section, insect and other attacks on plants, and varieties of gooseberries and currants.

Miss Talbot showed a plan of a creosoting plant and beech, birch, and poplar posts, that, after treatment, had been seven years in the ground without showing symptoms of decay.

The best thanks of the Society are again due to Mr. George Marshall for kindly acting as judge of this section.

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#### XIV.—REPORT UPON THE DAIRY HERDS COMPETITION.

*By R. Stratton, Judge.*

The Society was indebted to the liberality of a number of land-owners and farmers in the Counties of Somerset, Wilts and Gloucester, who kindly contributed sufficient funds to allow of the offering of prizes for Dairy Herds in connection with the Society's Bath Meeting.

The prizes were apportioned as follows :—

CLASS 212.—Herd of over 40 Dairy Cows, the property of a *bona-fide* Tenant Farmer farming land in the County of Somerset, Wilts, or Gloucester. 1st Prize, £20 ; 2nd Prize, £10 ; 3rd Prize, £5.

CLASS 213.—Herd of not less than 20 and not exceeding 40 Dairy Cows, ditto. 1st Prize, £15 ; 2nd Prize, £7 ; 3rd Prize, £3.

The Conditions of Entry were as follows :—

- 1.—Each Exhibitor must be a *bona-fide* Tenant Farmer (viz., one who resides permanently on his farm, working it himself and deriving therefrom his principal and ostensible means of subsistence) farming land in the County of Somerset, Wilts or Gloucester, and must produce for competition the whole of the horned stock on his farm or farms.
- 2.—No Exhibitor shall make more than one entry, and all entries must reach the Secretary not later than Saturday, April

27th, 1912, accompanied by the necessary entry fee. The third prize in each class will be withheld if there are less than 10 entries in the Class and the Council of the Society reserve the right to refuse any entry or to withhold any prize or prizes should they deem fit.

- 3.—The cows will be judged on the farms between May 6th and the date of the Show at Bath, and will not be exhibited in the Show Yard. Cattle entered for competition must, as far as is practicable, be brought to, or near, one homestead to be judged.
- 4.—All Exhibitors and their Exhibits will be subject to the general rules and regulations of the Society as printed in the Prize Schedule, and the decision of the Council as to the interpretation of these conditions, the awards of prizes, or in all matters of dispute, shall be binding and final.

Before commenting upon the various herds in the Competition, I must allude to the Conditions as above stated. The prizes were offered for the best "Herds of Dairy Cows," but the Conditions of Entry said that the exhibitor "must produce for competition the whole of his horned stock on his farm or farms." This appeared to me to involve such a contradiction in terms that (after consultation with the Secretary) I determined to act upon the wording set forth above and award the prizes for the best "Herds of Dairy Cows." This decision I am afraid may have caused disappointment to some exhibitors who prided themselves on their young stock, and are making special efforts to improve them, but as some very naturally produced all their steers for my inspection it will be seen how impossible it would have been to carry out the Conditions as stated in the Prize Sheet. After very full consideration, I determined to base my awards on the following scale of points, which, to the best of my judgment, was as sound a foundation as I could discover to work upon:—

POINTS.			
1.—For general dairy properties, viz., milk yield, shape of udder, etc., highest..	100		
2.—Uniformity of type and general breed character, class, etc., highest ..	75		
3.—Market value, highest .. ..	50		

There were fifteen competitors in the two classes, viz., eight in Class 212, and seven in Class 213, and although a larger entry might have been anticipated, the deficiency in numbers was made up in the excellency of the exhibits, for several of the herds inspected

were of very high merit indeed. With one exception, that of Mr. White, of Zeals, all the herds were of the non-pedigree Dairy Shorthorn type, with, in some instances, a few cross-breds; and for general purposes (combined dairying and beef producing), a better class of animal cannot, I believe, be found. In most of the herds I inspected, first-class Shorthorn bulls of good milking strains are in service, and anyone wanting to establish Shorthorn Dairy herds could not do better than secure selected heifer calves from some of the best of the cows from those herds.

In view of the excellence of the competition, I suggested to the Society's Stewards that they should not act upon Condition No. 2, which empowered the withholding of the third prize in each class if there were less than ten entries in the class, and this suggestion was accepted.

The following was my report upon the herds included in the competition, together with the awards:—

CLASS 212 (Eight Entries).

1ST PRIZE, MR. W. R. WITHERS, LOWER COURT FARM, LONG ASHTON, BRISTOL.—This herd consists of 88 cows and heifers, all roans, and with one or two exceptions, all young. They are a very level matching lot, in nice condition, showing very high milking capacity (of which ample evidence was afforded me), whilst their breeding character was all that could be desired from a Shorthorn Dairyman's point of view, and their market value was second to none, and up to the highest standard of points. Good pure bred bulls are in use, and the general management of the herd was evidently excellent. I had no hesitation in awarding Mr. Withers the first prize.

2ND PRIZE, MR. C. WOOKEY, BARFORD PARK FARM, DOWNTON, SALISBURY.—A very good herd of 80 grand cows, all roans, of good scale and affording ample evidence of first-class milking properties, though neither with regard to this nor the first-named herd are "records" kept, beyond the general weekly returns of milk sold. An excellent pedigree Shorthorn bull is used here. This herd was a good second in the competition.

3RD PRIZE, MR. W. J. K. WATERS, MANOR FARM, BISHOPSTONE, SALISBURY.—A very useful herd, of each individual of which records of milk yield are kept, and the average of yield is a high one. There are a few cross Herefords in this herd, which (though not improving the general character of the herd from a breeding point of view) are among the largest milk producers. Some promising

young stock were relied upon, but had to be ruled out because, as already explained, I felt that I had to award the prizes to the best "Herds of Dairy Cattle"; that being the main consideration.

**VERY HIGHLY COMMENDED.**—Mr. M. S. Waters, Swallowcliffe, Salisbury.—This herd consists of 140 cows and heifers, 100 of which are of very high merit. Milking properties are the speciality of this herd, Mr. Waters keeping a careful individual record of produce, to which system he attaches great importance, as it enables him to eliminate any poor milkers that are not paying what they ought to do. He considers that he reaps considerable pecuniary advantage from the adoption of this system. Certain it is that he has a lot of very good milkers indeed, and though his cows may not be quite so imposing to look at, or of as high market value, as those belonging to some of his competitors, he has 80 cows that I would as soon breed a dairy herd from as from any that I saw in my inspection. Good pedigree bulls are used here, and should produce cattle of the best type for grazing or milking.

**HIGHLY COMMENDED.**—Mr. F. Greader, of Horton, Devizes, showed me a very good, useful herd of 80 cows, of good Shorthorn-Dairy type, well worthy of high commendation. Mr. Greader has a lot of nice young cattle, which he expected would have been taken into the reckoning, coming on for the dairy.

**HIGHLY COMMENDED.**—Messrs. J. P. and H. F. Reakes, Page House, Coleford, Bath. This herd consists of 130 cows and heifers, a very serviceable lot. They appear to be quite excellent as milkers, but, owing to scarcity of keep last winter and the excessive drought of last summer, they were in somewhat low condition. They are in no way made up for show, but are treated on sound business lines, and give an excellent result in their milk yield. Most of the cows are of good Shorthorn type; first class pedigree bulls are used, and the young heifers which were expected to compete are very promising. For the most part this herd is home bred.

**HIGHLY COMMENDED.**—Mr. J. A. Attwater, Dry Lease, Cirencester.—This herd consists for the most part of pedigree Shorthorns primarily of course of the dairy type, but the majority showing ample capacity to lay on flesh when dry. There are some cows as good as need be in their dual capacity, but the herd has not been long enough in course of formation to be sufficiently uniform in milking character to win against somewhat formidable competitors. Mr. Attwater expected his young stock to have taken a strong part in the competition. There are several milking Kerries in this herd.

**HIGHLY COMMENDED.**—Mr. W. J. S. White, Zeals Park Farm, Wilts. I now come to a unique herd of over 100 Herefords well worthy to take part in a dairy competition. They are of excellent, true Hereford type, short of leg and thick of flesh; *many of them* have bags good enough for any kind of dairy cow, and are beyond doubt excellent milkers. Good as they are from a Milking-Hereford point of view (and I imagine there is no Hereford herd to compare with them in this respect) I could not make their yield in milk to be sufficiently high in the aggregate to compare favourably with some of the herds before mentioned, though I highly commend without hesitation.

CLASS 213 (Seven Entries).

**1ST PRIZES.**—In this class I found the points gained by the herds of Mr. H. Mathews, Down Farm, Winterbourne, Bristol, and of Mr. F. H. Wedmore, the Red House Farm, Stoke Bishop, Bristol, to be equal. I therefore divide the first and second prize money equally, and make these two competitors equal firsts. Mr. Mathews' herd of 28 is well known as a prize winner, it having gained the first prize, I believe, on two previous occasions, and if kept up to its present standard it will, no doubt, be the recipient of future honours of the same kind. The cows are exceptionally large, and show great capacity for milking; they are of the best Shorthorn Dairy type, and, though perhaps not quite so even and matching a lot as Mr. Wedmore's, they are probably worth more if put on the market. However, the points of merit between the two herds were so even that I thought it right to divide the prizes equally.

Mr. Wedmore's 30 are a very level lot of young cows and heifers, only one being as old as seven years, whilst most of them were three or four years old. They are all of good Shorthorn-Dairy type, their milking records are carefully kept, and their returns are excellent in this respect. The herd is good and well managed; a good pedigree Shorthorn bull is in service, and should produce good foundation stock for a dairy herd.

**3RD PRIZE.**—Next to the above-named herds, I place the herd belonging to Mr. G. F. Cullimore, Mobley Farm, Berkeley, Gloucestershire. This is evidently a very heavy milking herd, though no individual records are kept; the cows are big with good roomy bags, and many of them are of the best Dairy-Shorthorn type. A good pedigree bull is used here.

**HIGHLY COMMENDED.**—Mr. C. Bennett, Lorridge, Berkeley,

Gloucestershire, has a very useful herd. His cows having for the most part been milking through the winter did not show for milk as well as they probably deserved, but it is evidently a good working herd, nearly all bred by exhibitor, who pays special attention to milk records, and relied upon his young stock, which are very promising, to help him in the competition. The cattle are very well matched, if not quite so large as some others.

HIGHLY COMMENDED.—Mr. R. H. Hole, Clapcote, Grittleton, Chippenham, has a herd consisting of 4 cows and 26 heifers, all having calved last autumn. This is a new herd, only started last Michaelmas. The foundation is good, the milk record good for heifers, and, with the good well-bred Shorthorn bull now in service, Mr. Hole should soon have a prize-winning herd of dairy cows.

COMMENDED.—Mr. H. Ford, Blue Gate Farm, Clapton, Berkeley, Gloucestershire, entered 25 cows, but produced only 20 for inspection. These were good, large animals, and appeared capable of giving plenty of milk, but for the most part they had been milking through the winter, and so did not show to the best advantage. The young cattle here are promising.

COMMENDED.—Mr. W. Butler, Gatcombe Farm, Flax Bourton, Bristol, possesses a nice little herd, showing good breeding and milking character, but not sufficiently uniform to be more than Commended. Here too the young stock are very promising, and were relied upon to help in the competition.

I think the Society should consider whether it would not be wise in future to confine the prizes to animals "bred on the farm." In the event of the herd being composed partly of home-bred and partly purchased stock, I think there would be no difficulty in separating them for competition, thus encouraging a line of business, viz., the breeding of dairy cattle (producing large quantities of milk combined with flesh-making capacity), for which there is undoubtedly a wide field. We hear of the Dutch having done wonders in this line, and it is high time that the breeding of this class of cattle should be encouraged as well as the flesh producers that are good for nothing but beef, and are produced more for the foreign market than for our own.

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## XV.—ANNUAL REPORT UPON THE SOCIETY'S GENERAL OPERATIONS.

*By Thos. F. Plowman, Secretary and Editor.*

The Annual General Meeting of members was held on Friday May 24, in the Council Pavilion, in the Show Yard, Bath.

The President (the Marquis of Bath) occupied the Chair, and there was a large attendance of members, including: The Right Hon. Henry Hobhouse and Messrs. J. D. Allen and R. Neville Grenville (Vice-Presidents), the Earl of Devon, the Hon. G. D. Coleridge, Col. Chester Master, Sir H. Miles, Bart., Sir H. Lopes, Bart., Sir H. H. A. Hoare, Rev. A. T. Boscawen, Rev. H. C. Guyon, Rev. A. Richardson, Dr. J. A. Voelcker, Professor Penberthy, Dr. E. C. Ashford, H. B. Napier, C. M. F. Luttrell, W. H. Clark, J. Cooke Hurle, J. T. Gibson, C. Coles, H. F. Cotgrave, E. Lewis, H. A. Fry, G. Lipscomb, G. Nicholls, E. G. Dulcken, E. G. Peacock, D. Alexander, G. Martyn, C. N. P. Phipps, H. K. Oliver, E. A. Rawlence, J. A. Tate, T. Warne, H. M. G. Evans, J. Warne, A. D. Snow, J. D. Crewdson, T. E. Studdy, and others.

The Minutes of the previous Annual General Meeting having been read and confirmed, Mr. G. Martyn moved, the Rev. A. T. Boscawen seconded, and it was resolved, that Lord Falmouth be elected President of the Society for the ensuing year.

On the motion of Mr. J. A. Tate, seconded by Mr. H. A. Fry, the gentlemen named on page *xv* of the Appendix to this volume were elected members of the Council for the years 1912-14.

The accompanying Report, which had been received and adopted at a meeting of the Council, held on May 23, 1912, was then submitted to the meeting:—

“The Council, in presenting their Annual Report, congratulate the members upon meeting once more within the precincts of the City with which the Society has been so long and so closely identified.

“The Council have been very desirous that the present exhibition, held in the Society’s birthplace, should be worthy of the occasion and of the regard which the citizens have always shown for the old Society dwelling in its midst. Their hopes in this respect have not been disappointed, as the present Show, alike with respect to Live Stock, Produce, Machinery, and Implements, is the largest Bath has ever seen.

“Since the last visit to Bath in 1900, the Council, so far as their resources have permitted, have continued their policy of maintaining and adding to the interest and utility of the Annual Show by the



institution of fresh departments. In pursuance of this, exhibitions illustrative of Nature Study and Forestry will now be found in the Show Yard, and the experience of the past few years has amply justified both these departures.

"Further new features, in connection with the Show, are Sheep Dog demonstrations, which have never before been held in Bath, and Special Classes for Dairy Herds, judged on the farms on which they are kept. The Society is indebted to the liberality of several noblemen and ladies and gentlemen in the Counties of Somerset, Wilts and Gloucestershire, who kindly contributed over £80 towards the cost of the Dairy Herd Classes. There is an excellent entry, and a very interesting and useful competition has resulted.

"The Council have not limited their attention to the Annual Show, but, when opportunity has offered, have lent their support to various objects for the advancement of agriculture and kindred industries. Foremost among these is the National Fruit and Cider Institute, the establishment of which was due to the practical and scientific research work initiated and conducted for some years, conjointly by the Society and the Board of Agriculture, at Butleigh, and to which the Society makes an annual grant of £100. The Council have also made a special donation of £25 towards the fund now being raised for the further development of the Institute. Experimental and research work is being actively carried on there, which there is every reason to believe is of essential service to those engaged in cider-making and fruit-growing. An arrangement has been made under which members of the Society can obtain from the Institute, free of charge, analyses of cider apples and perry pears.

"The Institute has also undertaken to distribute to the Society, or to persons nominated by it, free of charge, a selection of trees which have been worked with the best varieties of cider apples and perry pears, and has conferred upon the Society the privilege of nominating, free of all fees, one student for a course of instruction in the theory and practice of fruit-growing, cider-making, etc., to be held by the Institute at the University of Bristol.

"With a view to assisting farmers and others in dealing with insect and other pests which affect agriculture, horticulture, etc., the Council have availed themselves of an offer from the Board of Economic Biology of the University of Bristol, to investigate the nature of any insect or other pest and report upon it free of charge.

"During the past year, the Council have had various questions before them bearing upon Agriculture, including Animal Tuberculosis and, having considered the final report of the Royal Commission upon the subject, have pressed upon the Board of Agriculture and

Fisheries to bring into operation the Tuberculosis Order of May 27th, 1909, but with the provision of compensation from Imperial sources and not from the local rates. A recent communication from the Board, inviting the co-operation of the Society in connection with an enquiry which the Board desires to conduct with reference to the subject of Bovine Tuberculosis, is under the consideration of the Society's Experiments Committee, with a view to any possible assistance being rendered.

"A communication has likewise been received from the Board asking the Society to assist it in obtaining information upon the subject of John's Disease, into the cause of which the Board has instituted a scientific enquiry. The experiences given by those who took part in the Council discussion upon the subject clearly demonstrated the serious character and prevalence of the disease, which affects both cattle and sheep. The matter has been referred by the Council to the Experiments Committee, with a view to every possible assistance being given to the Board in their enquiries.

"On the invitation of a Parliamentary Departmental Committee, appointed to enquire into the recent outbreaks of Foot and Mouth Disease, the Council have appointed Prof. Penberthy to give evidence on behalf of the Society.

"The Council, agreeing with the opinion of the Glamorganshire Chamber of Agriculture, expressed in a report forwarded to them by the Chamber, that Caerphilly Cheese was, is, and should be, a whole-milk cheese, supported certain recommendations of the Chamber having for their object the maintenance of the quality and reputation of the cheese and the prevention of the making of an inferior article to the detriment of the customer.

"The Council regret that during the past year death has deprived the Society of some old and valued supporters, including Colonel A. Wyatt-Edgell, who for long, as a member of Council, and especially as a Steward of Arts, rendered the Society valuable service; the Earl of Onslow, for many years a Vice-President, and who filled the office of President in 1894 with much ability, and who also rendered yeoman service to Agriculture generally as a former Minister of that Department of the State; and Sir James C. Inglis, who was always ready to help the Society to the best of his ability in connection with railway matters.

"Two extraordinary vacancies in the Council have been filled up by the election of Mr. Cary Coles, of Winterbourne Stoke, Salisbury, and Mr. J. I. Storrar, of Grittleton, Chippenham.

"The Council regret that they have recently lost the services of Mr. J. H. Priestley, B.Sc., who had fulfilled the duties of Consulting

Botanist with much ability and zeal. At the same time, the Council congratulate him upon the fact that the severance was caused by his promotion to an important post in the North of England.

"The Council, having temporarily appointed Mr. H. C. Ayre to superintend the erection of last year's Show buildings at Cardiff, were satisfied by the way in which he carried out the trust reposed in him, that he was fully competent to discharge the duties of Superintendent of Works. They have, therefore, appointed him to that office in succession to the late Mr. J. Rossiter.

"In connection with the Bath Meeting, the Council have particular pleasure in acknowledging the friendly co-operation of the Somerset County Agricultural Association, which suspended its Annual Show for the year and contributed £100 to the Prize List. The Council, in recognition of this, have been glad to confer full members' privileges for the present Show upon the members of the Association.

"The Council have much pleasure in recommending that Viscount Falmouth be elected President for the ensuing year; and that the gentlemen named on the Agenda Paper be elected members of Council for the year 1912-14, in the room of those retiring by rotation.

"A proposal to hold the 1913 Meeting in Cornwall has been received with much enthusiasm in that county. A meeting called by the Council of the Royal Cornwall Agricultural Association was held, to which the principal towns sent representatives, several Mayors and Chairmen of District Councils being present, and this resulted in six Boroughs expressing a desire to receive the Society.

"A deputation of the Council, after a most careful inspection of all the sites submitted to them, came to the conclusion that the 1913 Show should be held at Truro, as, although it could not be said to have a pre-eminence in all respects over every other place in Cornwall, it appeared to the Deputation to be, from a general point of view, the most suitable, and the Council have accepted the invitation from that City. The Council were assured that, in whatever part of the county the show was held, all Cornwall would join in making it as great a success as possible, and that the unanimity with which they would support it would be thoroughly in the spirit of their ancient motto "One and All."

"The Council are particularly indebted to the Royal Cornwall Agricultural Association not only for the unanimity with which they supported the invitation, but also for the practical way in which they backed it up.

"The Council received a very cordial invitation from Swansea, to hold its 1914 Show in that town, and, in view of the heartiness with which the Society was welcomed there in 1892 and again in

1904; and the success which attended those meetings, they had no hesitation in accepting it.

"In 1915, it will be the turn of the Southern portion of the Society's area to receive a visit, and the Council have good hopes of completing arrangements to this end.

"The Council cannot conclude their report without some reference to a very kindly and graceful act on the part of the citizens of Bath, who selected as their Chief Magistrate for the year of the Show, and the first year of "Greater Bath" with its extended boundary, the permanent official representative of the Society. The Council regard this as a very happy indication of the feeling of the City towards the old Society and of the desire of the former to still further cement the friendship so long existing between the two bodies. This has been still further emphasised by the cordiality shown in connection with the present Show, by both the City and its neighbourhood."

The President, in moving the adoption of the Report, said that they would agree that it was a very satisfactory report. They would see from it that their operations were not merely confined to the annual show, for all through the year the work of the Society went on in various directions. Having referred to the chief points in the report, the President said that they looked forward with pleasurable anticipations to their visit to Cornwall next year. As one who had the privilege of going down to that county with a view to deciding upon the place where the show should be held, he could truly say that they were most cordially and hospitably received. They had many invitations to select from, but there was no jealousy, and all were working with a view to giving the Society a hearty welcome. The Council report, he always felt, was drawn up with such eloquence and covered so much ground, that it was hard to find a fresh point. and in moving its adoption he must be allowed to express the deep appreciation of the Society of what he felt was a compliment paid to it by the election of its Secretary as the Mayor of the City of Bath. Holding him as they did in the highest esteem and affection themselves, they were delighted to find that, although he himself had long known it, that that feeling was universal among all who knew him.

The Rev. A. Richardson seconded, and the Report was adopted.

The President then moved :—"That the best thanks of the Society" be presented to the Mayor of Bath and to the Local Committee for the cordiality with which they have received the Society and for their efforts to promote the success of the meeting. "Lord Bath said they had had the privilege of officially welcoming their Secretary in another capacity to the Showyard that year, and they were delighted to find him in another responsible position. They were assured before-

hand that they would receive a cordial welcome to Bath, for they had paid several visits to the City and had always been received with open arms. He was glad to think from signs in the yard during the last few days that there was every prospect of the present show being as successful, financially, as in other respects. He begged to express the thanks of the Society to those gentlemen who had acted on the Local Committee, and to whose goodwill and exertions they were greatly indebted. Mr. Lewis and Mr. Fry had especially worked most energetically and whole-heartedly.

The Right Hon. Henry Hobhouse, in seconding the motion, said they had known Mr. Plowman for many years in one capacity, and now they had learned to respect and admire him equally in his new position. It was a very difficult thing to fill a dual personality with equal dignity and success, but they would agree that Mr. Plowman had acted as Secretary and as Mayor—and it had been sometimes a little difficult to distinguish between the two personalities—with equal dignity. He would like to add a word of hearty congratulation to the Mayor on the brilliant and pleasant gathering to which he had invited them on the previous evening. He included not only the Mayor, but the Mayoress and members of their family, and all who attended at the Pump Room on that occasion had full opportunity of realising and appreciating the antiquity and the dignity of the ancient City of Bath.

The motion was carried by acclamation.

The Mayor said that when the Society's Council directed the Secretary to request the Mayor to inaugurate the Show, the Secretary felt it necessary to at once ask for leave of absence during that ceremony. He had had no opportunity that day to ask for leave of absence, and therefore, perhaps, he might be allowed to speak in a dual capacity. In fact, the generosity of the Chairman's remarks, supplemented by those of Mr. Hobhouse, would hardly leave him any alternative. On behalf of the City, he could safely aver that it had been a great pleasure to all his fellow citizens once more to welcome the old Society's Show within their boundaries. The Society having been born in the city had lived happily there for 135 years, and he need hardly say the bond of affection between the two, which the Society was always ready to recognise, was valued by the citizens. They realised it was a great advantage to the city to have a gathering in their midst which attracted visitors from all points of the compass, for not only was it the means of a large amount of money being spent in it, but it also brought the city and its characteristic features, in which they had some pride, under the notice of strangers. He very much hoped that those gentlemen who honoured him by

attending the function, held midst such classic and historic surroundings, the previous night, would go away with the impression that Bath, in the interest of its associations, could hold its own with any other city in the Kingdom. The citizens felt that it was an advantage to agriculture generally that opportunity should be afforded for town and country to rub shoulders and that, he supposed, could be better done in the showyard than perhaps anywhere. It tended to a better appreciation of each and of some of the difficulties that beset those who were following the pursuit of agriculture. The extreme good-will shown by the city and the Society alike gave him courage to undertake the somewhat arduous duties pertaining to the two offices he held. He was extremely obliged to Mr. Hobhouse for his very kind reference to the Mayoress. Those intimately connected with the Society knew that for a long series of years she had done much to lighten his labours, and therefore he much appreciated her inclusion in the compliment paid to him. He thanked them on behalf of those he represented for the resolution they had so cordially passed, and he could assure them that it would be very much appreciated by the citizens at large and would add very much to the pleasure they felt in welcoming the Society.

Mr. E. Lewis, the Honorary Secretary of the Local Committee, said that the citizens of Bath were proud to have the Show in their midst, and that they looked forward to a visit of this Society in about every ten years. With regard to the present visit, there were two points which he knew had given the greatest satisfaction to the citizens of Bath—one was that the Lord Lieutenant of the County was the President for the year, and the other was that Mr. Plowman was Mayor. The Local Committee had great pleasure in doing anything they could to promote the success of the Show. He felt that they were much indebted to Mr. H. A. Fry for the help he had given them in securing so good a site for the Show.

Mr. Fry said that both as a member of the Local Committee and as an old member of the Society, it had been a great pleasure to him to do anything in his power to promote the success of the present Show.

On the motion of Mr. E. G. Dulcken, seconded by Mr. H. F. Cotgrave, a vote of thanks was accorded to the Judges.

Sir Henry Y. B. Lopes, in moving a vote of thanks to the President, referred to the very active and enthusiastic interest he took in the work of the Society, whilst he had always presided over their meetings with the greatest ability and geniality.

Dr. Ashford seconded, and Lord Bath briefly returned thanks, which terminated the proceedings.

## XVI.—THE NATIONAL FRUIT AND CIDER INSTITUTE.

*By B. T. P. Barker, M.A., F.R.H.S., Hon. Director, and  
John Ettle, F.R.H.S., Superintendent of the Fruit Department.*

In the report of the Institute published in the last number of this *Journal*, it was stated that there might be a considerable extension of its work in the near future. This expectation has been realised, and the outstanding event of the Institute's year has been the accomplishment of its association with the University of Bristol. It will be recalled that the Board of Agriculture had intimated that it was prepared to make a substantial grant from the fund placed at its disposal by the Development Commissioners for purposes of agricultural research, provided that the Institute became associated with the University of Bristol, and that certain other conditions were complied with. A sum of £33,000 per annum has been granted by the Commissioners to the Board from the Development Fund to enable it to provide for research in various branches of agriculture. The scheme now being organised by the Board is to establish throughout the country about a dozen Research Stations, each of which is to be allotted a special subject for investigation. There will, for example, be one station engaged upon the study of soils, another concerned with problems of animal nutrition, and a third with plant-breeding. The subjects selected cover practically the whole range of agriculture. As far as possible existing institutions are being made use of under the scheme in connection with the subject with which they are already particularly identified. The Board, therefore, being anxious to locate one of these stations in the West of England and to stimulate through it the development of agriculture in that area, have selected the Institute as the centre for investigations in fruit culture and the practical treatment of plant diseases. In pursuance of its policy that, where practicable, each research station should be linked to a university, so that the institutions might acquire a university standing and gain the benefit of the close association of their staffs with those of other university departments, the Board laid down as a condition for the allocation of this work to Long Ashton that the Institute should associate itself with the University of Bristol. The establishment of a new department in the University was thus necessitated, the work of which was to be centred at Long Ashton. The University was invited to submit a scheme for the establishment of such

a department, and after negotiation with the Governing Body of the Institute arrived at a mutually satisfactory scheme, which has been submitted to the Board and has received its approval.

The details of the scheme, as set out in the Ordinance to associate the Institute with the University, are as follows. The Institute places the entire management of the research station at Long Ashton in the hands of a committee of sixteen members (now known as the Agricultural Research Committee), seven of whom are the members of the Managing Committee of the Institute and five, (the Vice-Chancellor being one), appointed by the Council of the University, four by the Senate of the University, and one by the Board of Agriculture. The Agricultural Research Committee has full control of the income of the Institute and is entitled to use for the objects of the Institute the said income, and also the lands, houses, furniture, or movable property, trees, plants, or live stock, for the time being belonging to the Institute, or assigned to its use by the University or by any other person or persons. This Committee has appointed a sub-Committee, consisting of the present members of the Managing Committee of the Institute, for the purposes of so much of its work as concerns fruit-growing and the manufacture of cider and perry. All officers and employees of the Institute continue to hold as nearly as possible the same offices or employment as heretofore under the same conditions and tenure. The objects of the Institute continue to be those specified in its Memorandum of Association, and the Articles of Association remain in force and continue to govern the business of the Institute as far as is consistent with the provisions of the Ordinance of Association. All grants made to the University for agricultural or horticultural research are, unless otherwise indicated in the terms of the grant, to be placed at the disposal of the Agricultural Research Committee to be dealt with under the provisions of the Ordinance.

This association of the Institute with the University has, as already stated, involved the establishment of a new department in the University, to which the title of Department of Agricultural and Horticultural Research has been given. The Director of the Institute has been appointed head of the Department and Professor of Agricultural Biology in the University. As far as possible the work of the Department will be carried on at the Institute, which thus becomes the Agricultural and Horticultural Research Station of the University.

The Board of Agriculture at the same time intimated to the University that it was prepared to make it one of the Advisory Centres for the provision of technical advice to farmers, and that



it desired that this scheme should be associated with the research scheme just outlined. The Board has been granted from the Development Fund by the Commissioners an annual sum of £12,000 for the provision of advice and assistance to farmers in connection with the various local problems in agriculture with which they have to contend. For the organisation of this work the counties throughout the country are being divided up into twelve groups, and an Advisory Centre is being established in connection with each. The Bristol centre will serve the counties of Gloucester, Hereford, Somerset, Wiltshire and Worcester; and it is anticipated that Devon and Monmouth, both of which contribute annual grants to the Institute, will also be associated for questions relating to fruit culture and cider-making. The organisation of the work of the Bristol centre will be in the hands of the Agricultural Research Committee referred to above; and the Department of Agricultural and Horticultural Research will be responsible for it in addition to the research work in connection with fruit culture.

In order to carry on these two schemes considerable developments at Long Ashton have been made necessary. The staff has been increased by the appointments of Mr. A. H. Lees, M.A., who will act as Plant Pathologist and deal with diseases of plants; Mr. C. T. Gimingham, F.I.C., as Agricultural Chemist, to undertake soil investigations and other problems of a chemical nature; Mr. Grove, as Oenologist, to devote special attention to fermentation problems; Mr. J. W. Eves, as Pomologist, to take charge of the practical experiments in fruit culture; and Mr. W. Camps, as Laboratory Assistant. The two former gentlemen have been specially appointed in connection with the Advisory scheme. A mycologist is to be appointed later. Mr. John Ettle, F.R.H.S., has been granted permission by the Somerset County Council to act as Adviser in Practical Horticulture to the Department. Mr. E. P. West has been appointed Manager-Secretary of the Station.

The primitive laboratory accommodation at the Institute is obviously inadequate, and arrangements have accordingly been made for the erection of new laboratories. Several additional buildings are also required in connection with the schemes, including an extension of the cider house, a manager's house, greenhouses, a fruit room, and other horticultural buildings. It has been estimated that a sum of about £10,000 will be necessary to cover the cost of the buildings and their equipment in addition to the purchase of the existing buildings and ten and a half acres of land immediately adjoining, which will be required for the new buildings and other purposes. One half of this sum has been promised by the Treasury,

provided that the other half could be raised locally. The Chairman of the Agricultural Research Committee, the Right Hon. Henry Hobhouse, undertook to endeavour to raise that amount ; and the successful accomplishment of that object is mainly due to his invaluable assistance. The plans of the new buildings have now been approved by the Development Commissioners, and the erection is being proceeded with. The purchase of the land has already been completed. It is probable that at least fifty acres of land will be required for the full development of the work of the station. At present the Institute has about seventeen and a half acres already planted for its fruit work, including the ten and a half acres now the property of the Department, the remainder being held on lease from the Ashton Court Estate. This area will suffice for immediate purposes, and additional land as required will be leased from time to time.

The annual expenditure necessary to carry on the work of the institution when the two schemes are in full working order has been estimated to approach £5,500. The present income of the Institute averages from £1,200 to £1,500. To this in future will be added a sum of £300, the interest on a grant of money made by the late Lord Winterstoke to the University for agricultural work. The Board of Agriculture is prepared to make an annual grant not exceeding £2,500 towards the Research Scheme, provided that the local contributions do not fall below one-half of that sum. In addition it will make a separate grant of £1,000 to cover the expenses of the Advisory Scheme. The probable income from all sources will thus just suffice to meet the estimated expenditure. At the same time it is clearly most necessary that the present grants from County Councils to the Institute should be maintained, since any deficiency in that direction will be followed by the reduction of the research grant of the Board by twice that sum. The members of the Agricultural Research Committee, the body which will in future hold the general responsibility for the work of the institution, are the Right Hon. Henry Hobhouse (Chairman), Sir Isambard Owen, D.C.L., LL.D., M.D., (Vice-Chancellor of the University), Sir C. T. Dyke Acland, Bart., Mr. Hiatt C. Baker, and Professor Ainsworth Davis, M.A. (Principal of the Royal Agricultural College, Cirencester), representing the Council of the University ; Professors F. Francis, D.Sc., Ph.D., F.I.C., and Lloyd Morgan, D.Sc., LL.D., F.R.S., and Drs. O. V. Darbishire, B.A., and W. D. Henderson, M.A., B.Sc., representing the Senate of the University ; and the seven members of the present Managing Committee of the Institute. The representative of the Board of Agriculture has not yet been appointed.

The Institute has thus now entered upon a new phase in its career, and it may be regarded as having passed beyond the probationary stage to that of a permanent institution. The provisions of the agreement with the University of Bristol have been drawn up so as to ensure that the work for which it was originally established shall not suffer in any way by the change. It stands in fact to gain immeasurably by the altered conditions, and its continuity is now assured.

The present opportunity may be taken to acknowledge its indebtedness to the Bath and West Society and other bodies for the financial and other support rendered during the critical period which has elapsed since its establishment, when its existence depended practically entirely upon that support; and the hope may be expressed that it may be further continued to enable the institution to carry on under more favourable circumstances the work which it is expected to do in aiding the interests of agriculture in the West of England and in providing for the farmers in that area the advantage of facilities for advice and assistance in no way inferior to those in other parts of the country.

The amount of experimental work which has been done at the Institute during the past year has been to some extent affected by the attention which it has been necessary to give to matters in connection with the developments already described. Considerable progress has, however, been made in several directions. A record of a part of this is given in the following report of some of the subjects which have been under investigation. A fuller account of the work will be given in the Annual Report of the Institute.

## INVESTIGATIONS ON CIDER-MAKING.

### SINGLE VARIETY TRIALS.

In view of the exceptionally sunny and dry character of the summer of 1911 a special degree of interest attached to the trials of vintage varieties conducted in the ciderhouse on similar lines to those which have been carried on each season since the establishment of the Institute.

The undermentioned varieties were those obtained for trial on a practical scale for the season 1911-12 :—

**APPLES. SHARP VARIETIES :** Backwell Red, Brice's Kernel, Bull's Eye, Butterbox, Cap of Liberty (two samples from different localities), Cherry Pearmain, Dufflin, Frederick, Gatecombe, Kingston Black (seven samples from different localities), Neverblight, New Foxwhelp, Porter's Perfection, Sam's Crab, South Queening, Wallis' White, and Yellow Styre.

**SWEET VARIETIES :** Burstout, Cluster, Eastham, France, Romeril, Slack-ma-Girdle (two samples from different localities), Sweet Alford (three samples from different localities), Symes' Sweet, and White Alphington.

**BITTERSWEET VARIETIES :** Ashton White, Belle Norman, Broadleaf Norman, Clifton Crab, Dabinett, Early Red Jersey, Farmer's Friend, Ford's Jersey, Fréquin Audièvre, Glastonbury Jersey, Horner, Major, Médaille d'Or, Newton Red Jersey, Red Norman, Russet Jersey, Twistbody Jersey, and Yarlington Mill Jersey.

**PEARS :** Moorcroft.

Details of individual ciders and perries may be obtained upon application, and will be published in due course in the Annual Report of the Institute for 1912.

An interesting feature of the trials was the inclusion of a number of the older Herefordshire varieties of repute, such as Sam's Crab and Cherry Pearmain, which had not previously been tested at the Institute. It was noteworthy to find that, unlike many other of the old varieties of high reputation tested in previous seasons, they for the most part fully sustained the opinion formed as to their merits by cidermakers of past generations. In the case of the two varieties named this was particularly satisfactory, since they are locally considered to be of some value as market varieties. Growers have thus the benefit of their use for two distinct purposes.

The nature of the summer of 1911 raised high anticipations as to the probable quality of the cider produced from the fruit of that season. It must be admitted that those expectations were by no means fully realised in the results. Without any question it may be placed on record that the average quality for the season was distinctly higher than usual. At the same time the ciders made at the Institute in the single variety trials, as well as those exhibited in connection with the principal cider competitions during the summer of 1912, showed that there was a quite unexpected lack of examples of the highest degree of merit. There was in general no lack of sweetness, body, and strength ; but attached to those desirable features there were in most instances a coarseness in flavour, due frequently to excess of tannin or related substances, and an absence of any special character beyond that of sweetness which rendered them by no means entirely pleasing in character. The fine flavoured ciders of well marked and delicate fruity aroma which are characteristic of some seasons were in 1912 generally conspicuous by their absence.

Such were the general impressions of the 1911-12 vintage left at the end of last summer, and to a large extent they still hold good. Writing at the end of the year, however, it may be said that they need some modification or qualification. The ciders to a larger proportion than in most years have shown improvement with advancing age, this being

especially marked in the sweeter and heavier types. They still lack the delicacy which characterises the best type of cider, but the coarseness is being mellowed with age and tone is developing and replacing the featureless sweetness and insipidity. It seems now probable that this vintage will in future have to be regarded as one which was slow in developing and required time to show its real value. One interesting fact connected with the vintage remains to be recorded, this being that the disorder of sickness was by no means so common as had been anticipated.

The analytical data in connection with these ciders are of more than usual interest. As was to be expected after the hot, dry summer, the specific gravities of the juices were decidedly above the average. In many cases they were abnormally high, and the exceptional amounts of sugar resulted in the alcoholic strengths of the mature liquors being generally unusually pronounced. The acidities of the juices proved higher than had been anticipated, the presumption having been that the excessive sunshine and warmth would have caused very complete ripening and conversion of malic acid to sugar. Instead, however, the acidities as a whole were probably above the average, this certainly being the case with the great majority of sweet and bittersweet varieties. The tannin values of the juices were also distinctly above the average for most varieties, a feature which was easily apparent in the flavour of the ciders. The rates of fermentation of the juices were, as in the case of the acidities, somewhat higher than anticipated, being in many instances above the normal. Here again it was among the sweet and bittersweet varieties that the excess was most marked. In spite, however, of the rather high rate there was generally comparatively little difficulty in controlling the fermentations, the extra amount of sugar ensuring the continuation of the primary fermentation over a longer period than usual in most cases; while the natural clearing properties of the juices were generally well developed also. The ciders made in the first half of the season were, however, as usual much more difficult to manage than those made later, and in many instances showed marked tendency towards renewed fermentations after the primary fermentation had been checked.

Taking the results for all the constituents usually estimated, it is clear that the juices for the season should be regarded generally as being more or less concentrated forms of the normal type. Undoubtedly the drought of the summer reduced the amount of water taken up by the trees, and the heat caused a greater degree of transpiration than usual. Thus all the constituents of the fruit would be affected in the same direction, and the somewhat

unexpectedly high values for the acidities and rates of fermentation accounted for. In this connection it is noteworthy to find that the sharp varieties do not appear to have been so greatly affected as the sweets and bittersweets, a fact which seems to suggest that that class of apples may be more capable of withstanding dessicating influences than the other two classes. Possibly the osmotic or water-attracting properties of the malic acid which is present in greater abundance in the fruit of that class, may have some influence on the amount of water held by the tree, either by reducing the amount of transpiration or by increasing the absorption of water through the roots. The general characters of the 1911-12 vintage are well explained by the view that the juices were in a more concentrated form than usual, the somewhat striking coarseness and the marked slowness of maturing being the natural sequence.

Altogether the 1911-12 vintage season must be regarded as of exceptional interest not only to the cider-maker but also to the plant physiologist on account of the instructive facts revealed as to the effects of climatic conditions on the quality and composition of the fruit and the suggestive light thrown upon various aspects of the vital processes and chemical changes associated with the production of fruit.

#### CIDER SICKNESS.

In the report of last year a summarised account of the investigations on cider sickness, as far as they had proceeded up to that time, was given. Continuous attention has been paid to the subject in the laboratory during the past twelve months, and further information has been gained, principally in the direction of the chemical side of the question. The recent work has been dealt with in a paper read last December before the London Section of the Institute of Brewing, and a *résumé* of that article is here given.

It has already been proved that sickness is a bacterial disorder to which sweet ciders are liable. The bacteria which cause the malady are apparently more or less generally distributed in ciders, the available evidence leading to the conclusion that the organisms are to be found naturally occurring on the apples along with wild yeasts and other organisms of fermentation. As in the case of the latter, they find their way into the juice through the operations of milling and pressing the fruit, and their subsequent fate seems to be very largely determined by the quality of the juice in which they find themselves. In the case of rapidly fermenting juices there is evidence to show that they suffer from competition with the

yeasts and fail on that account in most instances to get the upper hand after the cider has matured, with the result that the liquor escapes the disorder. Since in many cases also such rapidly fermenting juices ferment so completely that there is very little, if any, residual sugar left after the completion of the primary alcoholic fermentation, it follows that no outbreak of sickness occurs because the bacteria have no supply of the necessary sugar to enable them to produce the typical characters of the disorder. If, again, the juice is markedly acid in character, the cider remains generally immune owing to the inability of the organisms to flourish in the presence of much acid. On the other hand, if the juices are naturally of the slow fermenting type, the presence of relatively large quantities of unfermented sugar in the mature ciders produced from them renders them very susceptible to the disorder, provided that their acidity is not too marked. The presence of a sufficient supply of unfermented sugar coupled with the occurrence of the sickness bacterium in a comparatively active condition in the mature cider and a relatively low content of malic acid are, therefore, the factors favourable to the appearance of the disorder. Under such conditions, when the temperature of the liquor rises with the approach of the warm summer weather, the bacteria develop more or less rapidly in the liquor, acting on the sugar to produce the chemical changes which are responsible for the characteristic features of the disorder. These changes consist in the decomposition of the sugar mainly into carbon dioxide and ethyl alcohol, together with small quantities of other substances, among which may be enumerated formaldehyde, acetaldehyde, methyl alcohol, hydrogen, and formic, acetic, propionic, butyric or valeric, and oxalic acids. The breaking up of the sugar accounts for the loss of sweetness, the production of a large quantity of carbon dioxide for the violent evolution of gas and the effervescence of the liquor, and the formation of comparatively large quantities of aldehydes and smaller amounts of other volatile compounds for the development of the characteristic flavour and aroma of sickness. Recent work has shown that the aldehydes must probably also be held responsible for the characteristic persistent frothy head typical of sick ciders and for the development of the dense turbidity of the liquor.

With regard to these two points it has been found that if acetaldehyde is added to sterilised cider, and the latter kept some weeks under aseptic conditions, a dense milky turbidity will gradually develop, and the liquor will acquire an odour reminiscent of sick cider. If at this stage lime water is added to the liquor, a considerable quantity of carbon dioxide is given off and a persistent frothy head,

entirely resembling that of a sick cider, is produced by the evolved gas. This evolution of carbon dioxide and the consequent formation of the frothy head only occurs when the aldehyde has been in the cider long enough to cause the turbidity. If the lime water is added to the cider immediately after the addition of the aldehyde, no gas is given off and no frothing occurs. It appears probable, therefore, that acetaldehyde acts slowly on some constituent or constituents in cider, causing the formation of the insoluble substance to which the turbidity is due and at the same time bringing about a change which, on reduction of the acidity of the liquor by the addition of lime water, leads to the evolution of carbon dioxide and the accompanying production of the persistent froth.

There is additional evidence to connect the occurrence of the turbidity with the presence of aldehyde in a sick cider. The microscopic appearance of the insoluble substance which causes the turbidity is highly characteristic. It occurs in the form of minute oily or resinous looking droplets, some single and easily mistaken for individual bacterial cells, and others aggregated together so as to resemble very closely small colonies of cocci. The insoluble compound resulting from the addition of acetaldehyde to sterile cider appears practically identical when examined under the microscope. The solubilities of the two compounds are also similar. Both dissolve more or less freely when the cider is warmed, separating out again on cooling. They are also soluble in alcohol, and are precipitated on the addition of much water to the alcoholic solution. Formaldehyde acts in very similar fashion to acetaldehyde, differing only in the much greater rapidity with which the turbidity makes its appearance and in the much larger quantity of the insoluble compound formed. In this case also the latter closely resembles, if it is not identical with, the substances formed in the other two cases. That the compound or compounds which cause the production of the turbidity in sick cider are volatile substances is proved by the following experiment. If a small wash bottle containing sterile cider is attached to a vessel containing cider in an active state of sickness, so that the gaseous and volatile products from the latter are made to pass through the sterile liquor, the latter in the course of some days will gradually become more and more turbid. An examination of the substance causing this turbidity then shows that it possesses the characters which have been described above as typical of the insoluble compound formed naturally in sick cider and of the similar compound resulting from the addition of aldehyde to sterile cider. That the turbidity in the sterile cider in the wash-bottle is not due to accidental infection with the sickness bacterium



is proved by the fact that the liquor is still in a sterile condition at the end of the experiment.

The substance or substances in the cider on which the aldehydes act to bring about the formation of this insoluble compound belong in all probability to the class of constituents generally regarded as tannins. The evidence in favour of this view is now comparatively strong. If formaldehyde is added to cider and the liquor left until no further formation of the insoluble compound occurs, the cider after filtration no longer gives any of the ordinary reactions for tannin, thereby demonstrating that the tannin originally present have been destroyed or removed. If a quantitative estimation of the tannin in a cider is made by the ordinary permanganate method of analysis before and after addition of either formaldehyde or acetaldehyde, the tannin contents in the latter cases are invariably lower than those in the untreated cider; and within certain limits the more aldehyde added the greater is the amount of the reduction of the quantity of tannin shown.

The nature of this insoluble product of the action of the aldehydes formed during cider sickness on the cider tannins is now under investigation by Dr. Nierenstein and Mr. C. W. Spiers in the biochemical laboratory of the University of Bristol, and the results of their work will be published in due course.

Reference has been made in earlier accounts of this work on cider sickness to the striking differences in the nature of the disorder met with in individual cases. For instance, the violence of the fermentation, as represented by the amount of gas evolved, and the extent to which it proceeds, as estimated by the amount of sugar destroyed, are both very variable. In some cases very little, and occasionally no, gas is given off, although the alteration in aroma and flavour and the appearance of turbidity show that sickness has developed. In other cases a violent fermentation sets in for a short period only, ceasing as suddenly as it began and leaving the cider still comparatively sweet with a relatively large amount of unfermented sugar. Sometimes a violent fermentation occurs and continues until practically the whole of the sugar present has been destroyed, although the aroma and flavour characteristic of sickness are not developed. Originally it seemed doubtful whether a fermentation of this type was to be attributed to the action of the sickness bacterium, but recent investigations have made it probable that it is really a modified form of sickness and is due to the action of the organism in question. Occasionally the turbidity generally associated with sickness does not develop or, if it appears, occurs to

a very limited degree and amounts to very little more than a comparatively slight haziness. The study of the chemistry of the disorder has now shown that it is possible to account for all these variations in the character of the disorder and that they must be regarded as genuine cases of sickness.

Working with pure cultures of the organism and sterilised sugar solutions or ciders of known composition, quantitative analyses of the media after fermentation with the bacterium show that the amounts of sugar destroyed in individual cases vary considerably according to the conditions of the experiment. Not only so, the relative amounts of alcohol and carbon dioxide formed as the result of the decomposition of a given weight of sugar also vary widely. Sometimes the reaction occurs on lines very closely resembling ordinary alcoholic fermentation by yeast, approximately equal quantities of alcohol and carbon dioxide being produced and the total weights of the two compounds amounting to practically that of the sugar broken up. In other instances the amounts of alcohol and carbon dioxide differ widely, the quantity of the latter substance being more or less deficient. In extreme cases no appreciable amount of carbon dioxide has been produced, although sugar has been broken up and alcohol formed. The variability of the cider sickness fermentation thus finds an exact parallel in the case of these pure culture fermentations.

It has now been demonstrated that the characteristic flavour and aroma of sick ciders must be attributed very largely, if not entirely, to the production of aldehydes during the fermentation. The work with pure culture fermentations has also proved that the quantities of these substances formed are, like those of alcohol and carbon dioxide, very variable. The results show that the cases of sudden fermentations of sweet ciders in hot weather already referred to, in which the typical aroma and flavour of sickness are almost or entirely absent, are explained by the absence of aldehyde formation or the production of those substances in quantities much less than the normal.

In this article reasons have already been adduced for the belief that the turbidity of sick cider is due to the action of the aldehydes produced during the course of fermentation on the tannins naturally present in the cider. In view of what has just been stated as to the variability in amount of aldehyde production, it is evident that the extent of the turbidity may be expected to vary in a similar way; and, as already noted, such variations are met with in practice.

The main differences in the characters of the various manifestations

of cider sickness as they occur naturally, with which cider-makers are more or less familiar, have thus now been reproduced in the laboratory, working with pure cultures of the organism and sterilised sugar solutions or ciders. The question as to the conditions which are responsible for the variable behaviour is still under investigation.

Side by side with the study of the disorder in the laboratory, practical experiments in the cider house have been carried on to endeavour to find a satisfactory method of dealing with the liquor to prevent the outbreak of the disorder. Since it seems most probable now that the bacterium is present in the juice from the start, attention has been paid to methods by which the organism could be removed from or killed on the fruit before the latter is milled. Warcollier, in his experiments with French cider fruit, has shown that by washing it in a very dilute solution of formalin before milling a perfectly sterile juice can be obtained, which is at the same time free from the presence of the antiseptic. This method in the hands of careful workers is perhaps capable of useful application; but it may be doubted whether it is desirable for general use. Experiments in washing the fruit in cold water have been tried at the Institute. While the results show that in some cases the cider is afterwards less liable to sickness, the method is by no means a sure preventive. Washing with hot instead of cold water has also been tried in a limited number of cases. The temperature of the water used was kept between 55° C. and 65° C., since it has been found that the cells of the bacterium are killed by five minutes' exposure to temperatures of 55° C. and over. In no cases in the ciderhouse have the ciders washed with hot water afterwards turned sick, while in some of the control lots made from the same fruit not subjected to the hot water treatment sickness has developed. The number of trials of this method have not yet been sufficiently numerous to form a conclusive estimate of its merits; but when the new additions to the cider buildings and equipment at the Institute have been completed, it will be tested more exhaustively and under better conditions. The washing of the fruit with hot water does not seriously impair the flavour of the juice. There is no trace of the cooked or pasteurised character about it. At the same time, during the course of the summer after it was made, a slightly coarse or bitter flavour became noticeable as the amount of sugar was reduced by fermentation; and this sufficed to make it distinguishable from and slightly inferior to the cider made from the same fruit unwashed, although not, according to present results, serious enough to render the method worthless on its account.

The effect of filtration of the fresh juice direct from the press has been tested. These trials, although not numerous, have given very conclusive results so far as they have gone. The filtration at that stage has the effect of delaying the beginning of the primary alcoholic fermentation brought about by the yeasts and, in some instances, of reducing to some extent the subsequent rate of fermentation. In all cases where the cider thus treated was of a kind susceptible to sickness, it was found that sickness set in more quickly and caused a severer attack in the ciders which had been filtered direct from the press than in those of the same kind which had, except for the omission of the early filtration, been treated in every way similarly. Experiments in other directions, *e.g.*, those dealing with the watering of ciders referred to in another section of this report, and others dealing with the manufacture of small cider, have shown likewise that if the form of treatment results in the reduction of the rate of fermentation of the juice, it renders the product more susceptible to sickness. It may probably now be taken as a general rule that any procedure—other than the sterilisation of the juice or the addition of antiseptics—which tends to delay the onset of the primary fermentation and to reduce its rate also tends to render the liquor more susceptible to sickness. Hence it seems in the highest degree desirable that, in making cider under ordinary conditions, in all cases where sickness is feared efforts should be directed towards obtaining a vigorous and healthy fermentation in the juice as quickly as possible after pressing.

Further experiments in blending have once more completely confirmed the results given in earlier reports as to the influence of the acidity of the blend on the retardation of sickness. In many cases during the past season ciders in bulk have been by judicious blending prevented from becoming sick, which would, if they had been left unblended, have succumbed to the disorder.

There is now no question that if the facts which have been learnt as the result of these investigations are suitably applied, the risk of sickness may be very greatly reduced ; and there is considerable promise from the work at present in hand that cidermakers will eventually be able to obtain the mastery over this dreaded malady.

#### THE USE OF WATER IN CIDER MAKING.

The addition of water to cider has long been a subject of controversy among cider makers. Where the practice is adopted, the water is added in one of four ways. Sometimes it is mixed with the pomace before the latter is pressed for the first time, its addition

being justified by those who adopt the custom on the ground that with the best presses obtainable it is impossible completely to extract all the juice—some 60–70 per cent. of the weight of the residual pomace after pressing being actual juice impossible of expression by ordinary means—and the added water simply facilitates the recovery of a portion of this otherwise wasted residual juice by displacing it in proportion to the amount of water used. In such cases a juice is obtained which partakes of the general character of a pure juice, being simply a slightly diluted form of the latter,—unless a disproportionate amount of water is used—with the loss of strength compensated for by the extra volume obtained and the avoidance of waste of useful material in the discarded pressed pomace.

A second method consists also in the addition of water to the pomace with the same object as in the previous case, viz., the recovery of unexpressed juice ; but in this instance the water is not added until the pomace has already been pressed once and the normal yield of pure juice obtained. The liquor obtained by this form of treatment is obviously much more dilute than that yielded in the former case, and is generally spoken of as “ small ” cider, “ washings,” or “ seconds.” It is recognised as an inferior grade and does not challenge comparison with pure juice cider in the same manner as the preceding kind.

A third method consists in the direct addition of water to the pure juice obtained by extraction from untreated pomace. It cannot be urged for the use of water in this case that it is required to avoid the wastage of juice in the pressed pomace ; but the claim is put forward that it is justified and even necessary for fruit grown on certain classes of soil in order to provide a juice, the fermentation of which is more easily controlled and the keeping qualities of the cider produced better. A similar claim is also put forward on behalf of the first method, in addition to that of avoiding wastage already referred to. As in the latter case, the cider made from juice thus directly watered is a competitor with pure juice cider.

The fourth method in which water is used consists in the addition of that liquid to the cider after the latter has been fermented and is in fit condition for consumption. In this case it is simply a question of dilution in order to increase the bulk of the article and thus to add to the profits of the maker who places it in competition with pure juice cider. There can be no claim as in the former cases that it is justified either as a means of aiding the production of a better article or of utilising useful material which would otherwise be discarded.

In the investigations which have been made at the Institute during the past two seasons as to the actual results of the addition of water, the first and third methods only have been taken into consideration, since the second does not yield a product which is in any sense a genuine competitor with pure juice cider, and the fourth is obviously a case of adulteration pure and simple. The following remarks therefore only apply to the first and third systems.

These systems are in use in certain of the cider-making areas, and it is urged in perfectly good faith by many of those who adopt them that they result in the production of better ciders than the pure juice system for the average fruit of those localities. Hence, however distasteful it may be to those who hold literally to the pure juice standard for cider to be asked to countenance as legitimate the addition of a substance even of so innocuous a character as water, it must be admitted that, if it can be shown that its use results in the production either of a better article or of as good or only slightly inferior quality, with the advantages of fuller control and simplification of manufacture, then the case in favour of the practice is greatly strengthened. It was with the object of ascertaining how far such claims are justified that investigations on the subject were made at the Institute.

The claim in favour of watering appears to rest on two main grounds, viz., the superior keeping qualities of watered ciders, and the greater degree of control over the fermentation of the juices. It is probable, after examination of the subject, that these two points are really identical and are simply two different methods of expression of a single fact. Experiments show that it is quite certain that in one direction watered ciders are inferior in keeping qualities to pure juice ciders made from the same kinds of fruit. They are distinctly more liable to attacks of cider sickness. This is easily understood when their character is taken into consideration. Being in essentials in the fresh unfermented juice stage nothing more than the pure juice more or less diluted with water, it follows that the acidity is to a corresponding extent lower than that of the pure juice. Consequently, from what has already been proved with regard to cider sickness, they must be more susceptible to the disorder on account of their lower acidity, assuming that the addition of the water does not impart to them some specific resistant power sufficient to counterbalance the effect of the reduction of acidity. No such immunity is imparted by the water, as far as direct observation has shown, and practical experience with the watered ciders has completely confirmed the expectation that they would be more susceptible to the malady. There is, in addition,

another reason for their greater susceptibility. It will be seen from the results of experiments to be referred to in detail in subsequent paragraphs that the addition of water causes the rate of fermentation of the watered juices to be less than that of similar juices unwatered. This fact, the establishment of which is the most striking outcome of the experiments, is quite in accordance with expectation, since it is known that the principal factor in the juice determining the rate of fermentation is the content of nitrogenous substances available for yeast nutrition. The relative amount of these in the watered juice must be less than in the pure juice. Now the investigations on cider sickness have shown that anything which tends to reduce the rate of fermentation also tends to make the liquor more susceptible to the disorder. Thus the practice of watering the juice renders the cider more liable to sickness both by reducing the acidity and by lowering the rate of fermentation. Hence the claim that the addition of water gives the cider better keeping qualities is not only incorrect in the sense just described; the actual result is quite the opposite, the cider being more likely to succumb. At the same time there may be some foundation for the claim in the following way. Since the rate of fermentation is lessened, the cider tends to keep sweet longer and the period over which the fermentation extends is prolonged. Hence the liquor is kept charged with carbon dioxide for a longer time, and acetification, possibly, is warded off—temporarily, at any rate—for that reason. Hard, dry ciders are also sometimes confused by some of the more inexperienced makers with those which are really unsound; and the retention of sweetness for a longer period by the watered ciders is apt to mislead such people into assuming that the cider has kept better. Thus it seems probable that when the statement is put forward that the watered ciders keep better than the pure juice ciders, what is really meant amounts to nothing more than that they keep sweet longer or, in other words, that the fermentation is slower.

The other claim referred to, viz., that watered juices are more easily managed, amounts to precisely the same thing. The slower rate of fermentation renders control easier, both racking and filtering being more effective in checking fermentation under such circumstances. In the face of the evidence about to be mentioned the tendency of watering to cause a reduction in the rate of fermentation cannot be denied; and, within limits at any rate, the contention of those who favour watering as a means to the production of a better cider is to that extent justified. How far the advantage of superior control of fermentation and the retention in some cases of

an extra degree of sweetness is counterbalanced by the partial loss of the fruity flavour and aroma caused by the dilution of the juice with water is a question to which a general answer cannot satisfactorily be given. So much depends upon the characters of individual juices. Some pure juices may be so fully flavoured that a moderate dilution is of comparatively small account, and may in favourable cases pass undetected. Other juices, however, may be comparatively poorly equipped as regards flavour from the outset ; and the dilution of such could not fail to yield a thin, watery cider of inferior merit, in spite of the extra sweetness which might be retained as the result of the retarding effect of watering on the rate of fermentation.

It is not proposed to set out in detail here the complete statistics of all the experiments which have been carried out in connection with this question of the effect of watering. The results as a whole point conclusively to the fact that the advocates of the practice must rest their case primarily upon the reduction of the rate of fermentation of the juice and the advantages which arise as the result of that reduction. It is only necessary, therefore, to refer to the experiments which demonstrate that a reduction in the rate actually occurs.

Similar series of experiments have been carried out with a number of different juices obtained from representative vintage varieties of apples procured from several localities. It may, therefore, be claimed for the results that they can be regarded as thoroughly representative and of general application. It may be stated at once that they show a very general measure of agreement, and that, where at certain stages some appeared discordant, the differences have been satisfactorily accounted for owing to the interference of disturbing outside influences which occurred on account of the conditions under which the experiments were carried out. The most troublesome complications were found to be due to the fact that sickness frequently set in before the conclusion of the normal primary alcoholic fermentation. It is now known that in the earlier experiments the records for the latter half of the fermentations must be disregarded on this account. In the most recent series precautions have been taken to prevent the occurrence of sickness with the result that the figures obtained are more concordant. The effects both of the addition of water to the freshly milled pomace before pressing and also of its direct addition to the freshly pressed juice have been tested, the results being very similar in the two series. In the first case the pomace was divided into four lots, from one of which the juice was pressed without any addition,



while to the other three water was added in the proportion of 10, 25, and 50 per cent. of the actual bulk of pomace respectively. The juices obtained from these three lots of pomace were then each divided into two halves, one being left untouched, and sugar added to the other in quantity sufficient to raise the specific gravity to the same figure as that of the pure juice from the unwatered lot of pomace. In the cases where the effect of the addition of water direct to the freshly pressed juice was tested, a given bulk of juice was divided into four lots, one being left without addition of water, and water added to the remaining three lots in the proportions of 10, 25, and 50 per cent. of the bulk of the pure juice. Each of the three latter was then divided into two halves, one being left untouched, and sugar added to the other in quantity sufficient to raise it to the same specific gravity as the pure juice. Thus there were in most of the experiments seven different grades of juice in both the series with the watered pomace and those with the watered juice. All of the juices were allowed to ferment at a temperature of 27° C., and regular records of the rate in fall of gravity were kept. Duplicate sets of the same juices were used as controls.

In the accompanying table the records of one series, in which Gatcombe was the variety tested, are given. In this series the pure juice was taken and watered as described above. The specific gravities of the watered juices were then brought up to 1.069, which was that of the pure juice itself, by the addition of sugar. The results show clearly the retarding effect of the addition of water on the rate of fermentation, the extent of retardation depending upon the amount of water added. The more water used the greater generally was the reduction in rate. Occasionally, however, anomalous results have been recorded, and these will require further investigation.

The fact of the reduction in rate by watering having been thus demonstrated, it now remains to consider whether or not the amount of the reduction is sufficient to be of practical value. Undoubtedly there are some instances, particularly in the case of some of the juices which naturally ferment slowly, where the reduction caused by the addition of a comparatively small amount of water, such as 10 per cent., is pronounced enough to enable a useful degree of extra control over the fermentation to be obtained. In such cases, paradoxical as it may seem at first sight, it is possible at times to make a sweeter cider by adding water to the pomace or juice than by dealing with the undiluted juice. There are, however, many other cases where the reduction of the rate of fermentation by the addition of a moderate proportion of water is not great enough to

TABLE SHOWING COMPARATIVE RATES OF FERMENTATION OF  
WATERED AND UNWATERED GATCOMBE JUICES.  
ORIGINAL SPECIFIC GRAVITY IN ALL CASES, 1069, THAT OF WATER  
BEING TAKEN AS 1000.

Period of fall.	Pure Juice.	Juice + 10 % Water.		Juice + 25 % Water.		Juice + 50 % Water.	
*Number of points fall in gravity from Dec. 15—	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1	Sample 2	Sample 1
Dec. 22 ..	8	8	11	10	11	10	8
*Ditto Dec. 22—Jan. 2 ..	17	15	15	15	11	12	9
Ditto Jan. 2—Jan. 4 ..	17	17	15	17	15	16	13
Ditto Jan. 4—Jan. 6 ..	7	7	5	4	4	5	3
Ditto Jan. 6—Jan. 8 ..	5	6	1	1	2	4	1
Ditto Jan. 8—Jan. 10 ..	3	4	2	2	1	1	2
Total fall Dec. 15—Jan. 10	57	57	49	49	44	48	36
Actual specific gravity, Jan. 10	1012	1012	1020	1020	1025	1021*	1033
							1034

\* From December 15 to January 2 the juices in this series of experiments were kept at ordinary temperature ; afterwards they were kept at 27°C.

allow of the fact being utilised to advantage in the control of the fermentation. Excessive watering is necessary in such cases to reduce the rate to a useful degree. In all cases it must be remembered that the addition of water causes a reduction in the original gravity of the juice corresponding to the amount added. Hence, although the rate of fermentation is reduced, there is proportionately less sugar to be fermented ; so that what is gained in time by the reduction in the rate is more or less counterbalanced by the shorter period required to ferment the smaller amount of sugar present in the juice. It is, therefore, extremely problematical whether any appreciable advantage is to be derived by the use of water as a general practice, while there are obvious drawbacks to its use on other grounds. At the same time in special instances a fair case in its support could be made.

#### INVESTIGATIONS ON SPRAY FLUIDS.

Reference was made in last year's Report to work carried out in collaboration with Mr. Gimingham with the object of throwing light upon the nature of the fungicidal action of Bordeaux Mixtures. During the past season this investigation has been continued, and a good deal of further evidence obtained in support of the view that Bordeaux Mixtures act as fungicides chiefly because the fungi are able to poison themselves by absorbing copper from any portions of the insoluble copper compound with which they may come into contact.

The action of Bordeaux Mixtures upon other types of cells in addition to germinating fungus spores has been studied. For example, seedlings of mustard and other plants were grown with their roots in contact with the insoluble Bordeaux precipitate and contrasted with others having their roots dipping into the clear liquid obtained by allowing Bordeaux Mixture to settle ; in the latter case the delicate root hairs being in the same liquid as the insoluble Bordeaux precipitate, but not actually in contact with it. The result of these and similar experiments was to show that, so long as contact between the copper compound and the root-hairs was avoided, the seedlings grew in a healthy manner, but that the roots were shrivelled and killed when the Bordeaux precipitate was in close touch. The thin-walled cells of the root hairs evidently possess the power of absorbing copper and destroying themselves, just as do germinating fungus spores.

At the same time it is probable that such action as this on the part of the fungus is not the only one that takes place in practice

when Bordeaux Mixture is sprayed on to leaves. Every fruit-grower is familiar with the scorching that so often follows spraying. This is probably due very largely to the action upon the interior tissues of the leaf of copper brought into solution by excretions from injured spots on the surface of the leaf ; and experiments have shown that the amount of scorching largely depends upon the extent of the original injuries, whether naturally or artificially produced. Now since during most of the year it is a matter of the greatest difficulty to find leaves of fruit trees quite free from large or small injuries, a certain amount of copper will become soluble when Bordeaux Mixture is deposited on the leaves, and this soluble copper no doubt has fungicidal value. In this connection, it is, however, necessary to take into account the length of time since the production of the injury as it was found that only comparatively recent injuries affected the degree of scorching.

The bearing of the results of this investigation upon the practical side of Bordeaux spraying was indicated in the last report, and recent work has served to confirm the views there expressed.

#### SOIL ANALYSIS.

The continued use of the plantations and orchards at the Institute for varied experimental purposes has rendered imperative an accurate knowledge of the properties and nature of the soils. Mr. Gimingham is therefore carrying out a detailed soil survey of all the Institute orchards and plantations. The results of the analyses are not given here, since the work is not yet complete ; it has however proceeded far enough to show that both mechanically and chemically the soils of all the orchards and plantations are remarkably uniform. They all belong to one type, the differences being trifling. This is of the greatest importance, since a uniform soil in all field experiments is a thing most to be desired and most difficult to obtain.

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## XVII.—REPORT OF THE SOCIETY'S CONSULTING CHEMIST.

(*Dr. J. A. Voelcker, M.A., F.I.C., etc.*).

Nine samples were sent to me for analysis during the year 1912. These, together with one consultation, and 32 samples of milk analysed in connection with the Bath Show, comprise the analytical work of the year. The samples were as follows:—

Feeding Meal	..	..	..	1
Basic Slag	..	..	..	1
Town Refuse ..	..	..	..	2
Waters	..	..	..	3
Soils	..	..	..	2
				9

### DAIRY FEEDING MEAL.

A sample of this was sent me. It was guaranteed to contain 4% of Oil, 12% of Albuminoids, and 55% of Carbohydrates, the price being £5 17s. 6d. per ton. The analysis was as follows:—

				PER CENT.
Moisture	..	..	..	21.33
Oil	..	..	..	4.62
*Albuminoids	..	..	..	15.37
Starch and other Carbohydrates	..	..	..	41.30
Woody Fibre	..	..	..	12.64
†Ash	..	..	..	4.74
				100.00
*Containing Nitrogen	..	..	..	2.46
†Including Sand	..	..	..	.80

This meal was found to consist, for the greater part, of dried grains together with treacle. The analysis was above the guarantee, and the price was not out of the way.

### BASIC SLAG.

The analysis of the one sample sent was as follows:—

				PER CENT.
Total Phosphoric Acid	..	..	..	11.01
Equal to Tribasic Phosphate of Lime	..	..	..	24.06
Phosphoric Acid soluble in 2 per cent. Solution	..	..	..	
of Citric Acid	..	..	..	9.66
Equal to Tribasic Phosphate of Lime	..	..	..	21.11
Fineness of grinding	..	..	..	94.0

The price of this was 48s. per ton delivered. Reckoning on the amount of Phosphate soluble in Citric Acid solution, the price of the so-called "Soluble Phosphate" worked out at 2s. 3d. per unit, which is certainly high.

### TOWN REFUSE.

Two samples of this material were sent to me. The price charged was 1s. per ton on rail in London, the carriage and cartage on to the land amounting to 5s. 6d. per ton more.

The analyses of these lots were as follows:—

	No. 1	No. 2
Moisture .. ..	43·53 ..	25·50
Organic Matter .. ..	16·99 ..	27·07
Phosphoric Acid .. ..	·53 ..	·54
Oxide of Iron and Alumina, &c. ..	10·18 ..	14·47
Lime .. ..	4·14 ..	4·03
Sand .. ..	24·63 ..	28·39
	100·00 ..	100·00
Nitrogen .. ..	·64 ..	·57
Equal to Ammonia .. ..	·78 ..	·69

The two analyses were much alike except as regards moisture, No. 2 sample being much the drier, but no richer than No. 1.

The material, more especially the first sample, was very wet, and it will be noted that fully one-quarter of it was sandy matter.

The manurial value of such refuse is but small, and the amount of lime contained is not sufficient to make it worth using on that account. There is little doubt, however, that in the case of heavy clay land, the soil would be much benefited mechanically by the use of material of this kind, and, under such conditions, the refuse would be worth getting.

### WATERS.

There were three samples in all.

(a) The first of these—which came from near Plymouth—was a soft water containing only 5·6 grains per gallon of total solid residue. It was free from pollution, but contained too much vegetable matter, and would require filtering.

(b) This came from North Wales. It was, like the former, a very soft water, containing only 5·32 grains per gallon of total solids, and was quite pure. It, however, acted rapidly upon metal

pipes, cast-iron pipes in particular, being soon furred up with rust. I found that it also acted upon galvanized iron pipes to some extent, and in such cases it is best to use iron pipes which have been coated inside with tar or other protective composition.

(c) This was a water from Itchen Stoke, Hants. It was a hard water containing 24·08 grains per gallon of total solids, and, while it showed signs of containing water of land drainage, it was not contaminated with anything objectionable. On enquiry, I ascertained that the water came from a pump fixed inside the dairy. Such a position for a well is by no means suitable, as it must always be subject to the washings of the dairy finding their way into the well.

### SOILS.

A Member of the Society residing in Hampshire sent me a sample of soil, and asked if I could find, from examination of it, any cause for sickness among his pheasants, chickens, etc., which had been running out on the land. It was stated that at first the birds did quite well, but subsequently became weakly and eventually many died. There was no apparent disease, but the birds appeared to waste away and to die from weakness. It was also stated that lambs turned out on this particular land invariably did badly and "wasted."

On other parts of the park, however, birds and sheep did perfectly well, and any pheasants which had done badly on the first class of land, recovered when turned out on the other.

On obtaining this information, I asked for samples of the soil and turf of the two portions of the park to be sent to me, one from the land where the birds did well, and one from where they did badly.

I analysed the soils, and the results were as follows:—

	Soil on which pheasants did well.		Soil on which pheasants did badly.
SOILS DRIED AT 212°F.	No. 1		No. 2
Organic matter and loss on heating	5·62	..	8·39
Oxide of Iron and Alumina	4·19	..	3·20
Lime.. .. .	1·20	..	·76
Alkalies, etc. .. .	1·07	..	·84
Insoluble siliceous matter	87·92	..	86·81
	<hr/>	..	<hr/>
	100·00	..	100·00
	<hr/>		<hr/>

A comparison of these results brings out certain very clear points. In the first case No. 2 is seen to contain much more organic (vegetable) matter. Next, No. 1 has more "clay" and is less sandy, thus possessing much more "substance" than No. 2. In lime, again, there is a marked difference, No. 1 having nearly double the amount of lime that No. 2 has. Lastly, No. 1 is probably better supplied in alkalies, such as potash, etc. I further noted the great difference that, while No. 2 was distinctly acid (or "sour") to test paper, No. 1 was not so, but rather the reverse. It is fairly clear to me that No. 2 has become "sour" and requires "sweetening," an effect which liming would probably produce.

There was also a great difference between the herbage in the two cases, that of No. 1 being much superior. In the case of No. 2 there was a thick "matting" of roots on the surface of the soil, forming a regular "sponge." This is generally characteristic of sour land and inferior pasture. There was none of this "matting" in the case of No. 1. The soil of No. 1 was altogether the more satisfactory, and was not of the loose peaty-sand character of No. 2.

#### BEECH NUTS.

The one consultation was an inquiry from near Bristol in regard to Beech nuts, which were very plentiful during the year.

The enquiry was made whether there was any likelihood of profitably extracting the oil from these. Beech nuts contain from 17 to 20 per cent. of oil, which can be used for cooking and burning purposes. It is, however, very questionable whether there would be any demand in this country for it, as one could never depend upon a regular supply of the nuts.

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## The Note-Book.

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**Encouragement for Stock Farmers.**—Some time ago attention was called to certain signs which seemed to point clearly enough to great changes in the position of the meat-trade world, changes which must vitally affect the interests of home producers. Austria was then trying an experiment with a cargo or two of frozen meat, which was all sold within a few hours of landing, and keenly appreciated by the consumers for its comparative cheapness if not for its quality. Since then very little has been heard of the new departure in that particular quarter, but the idea has caught on in other countries, and bids fair to lead to vast developments. Italy has taken up the running, and is steadily increasing her imports of both live cattle and dead meat from Argentina, gradually establishing a great trade which no interested opposition will be likely to stop. Switzerland is also doing the same thing.

The latest news to hand is of far greater significance. The position of Germany with regard to her meat supplies is one of absorbing interest to both producers and consumers in this country, who will naturally view the matter from opposite stand-points. The increasing population of that great country has long been absorbing its home-grown beef more rapidly than it can be produced, and that article has become so scarce that prices have advanced so as to place it beyond the reach of the poorer classes, and as the Germans have a curious antipathy to mutton they are being driven to rely very largely on pork. But the example of other countries has begun to tell, and the outcry for more beef has become so strong that municipal authorities are taking steps to facilitate the placing of frozen beef on the market, notwithstanding an import duty of over 2d. per lb. "Appetite comes with eating," and in all probability the agrarian monopoly will have to give way to the popular demand for a reduction of this heavy impost on the nation's wants. It may be a work of some little time, but in the nature of things the barriers must give way and the movement spread over all central and western Europe.

What this will mean it requires little foresight to tell. It means a revolution in the British meat trade, which has hitherto provided the only reliable market for the surplus produce of young

countries overseas. I have always held a theory which some people may think far-fetched, that the world's production and consumption of food will always, in the long run, balance itself, though some markets may be temporarily over-supplied through exceptional circumstances. Look at the North American continent, and its position as to meat supplies at the present time, compared with what it was a few years ago. Its resources were then thought to be boundless, and now it finds difficulty in feeding its own population. As an exporting country it has virtually retired from the stage, and the Argentine and British dominions in the south have taken its place, threatening British producers with overwhelming competition. But Nature intervenes and forbids that one thickly populated country shall starve while another revels in plenty and cheapness, and British consumers must reckon with her laws. They have long had the advantage of cheap meat under the free import system, but other communities are demanding their share, and will get it.

Let us now look at home, and consider what can be done to meet the new circumstances that will arise when our meat importations are largely diverted elsewhere, and prices rise accordingly. Then will be the British farmer's opportunity, and it is high time he began to lay his plans for taking the full advantage of it. Will he be content with his present system of limited meat production, or, worse still, continue the retrograde policy manifested by the recent agricultural returns? If so, he will show a great lack of that foresight which marks the successful man of business. An increase in the area devoted to corn growing and a decrease in all classes of live stock constitute a discouraging sign, most unwelcome to thinking minds. It is, in fact, a movement in the wrong direction, and every effort should be made to arrest it. Even if the opening of new markets on the Continent should turn out a will-of-the-wisp and vanish into thin air, there is nothing whatever to fear from the increase of our flocks and herds. Good meat is dear as it is, and is likely to remain so, while, should the above contingency come about, farmers will stand to win a heavy stake. Many thousands of calves are being sacrificed for a few shillings, nearly all of which ought to be reared. Shall we some day be driven to legislate against this terrible waste of our national resources? It has recently been shown by the experiments of the Royal Society that calves can be weaned successfully and cheaply with scarcely any new milk.

Once again our thoughts revert to the old subjects of improvement in breeding and early maturity, and an object lesson in these lines of progress might have been seen by a visit to the Metropolitan

Cattle Market a short time ago. Standing amongst rows of three-year-old common stock in half-fattened condition, were four young pedigree Shorthorn heifers averaging about twenty months old. They had been bought by a dealer (?) at a sale in Wiltshire at a price which enabled him to get a profit on them in the London market. They were fine young breeding stock which it was a sin to kill, and I wondered what the farmers at the ring side could have been thinking of to let them go. But that is not all that was suggested by their presence. These young, ripe animals, prepared by their breeders for sale, fetched about 5s. 6d. per stone, while many ordinary bullocks from the pastures standing beside them were only realising 4s. 8d. ! Think of this, and reflect on the possibilities before us ! We might, by good breeding and good feeding from the start, bring out cattle which at half their age will be worth as much money as ordinary three-year-olds.—“ SPERO ” in *Live Stock Journal Almanac*.

**Clay Land.**—The *noli me tangere* of soils. Many readers will remember Mr. Baily Denton, the well-known expert in drainage and farm buildings, and it is to him that I am indebted for the above classical phrase, as applicable to stiff clay soils. Having had some experience of these soils, I thoroughly endorse the expression, for if ever soils could exhibit a touchy temper it would be these ; and it may be added that they are often, in famous words applied in another sense, “ uncertain, coy, and hard to please.” They are not always amiably disposed, and are somewhat exacting, and even revengeful. Clay soils reflect many phases of human nature, as is shown by the language used in describing their little ways. Like certain cantankerous persons, clay soils have their good points, for they are possessed of great capabilities when properly handled. They have, for instance, great natural capacity, exhaustless resources, and a retentive, although unconscious, memory. If they are exacting they abundantly repay liberal treatment, and if slow in responding they are safe custodians of what is entrusted to them. They cannot be charged with wastefulness, for when once brought into good condition they do not, like many other soils, run down like a clock in a single season. Light and free working soils may be kindly and grateful ; they may produce quite as good crops as clay lands, but only at the cost of frequent reminders or refreshers ; and if the fee is not paid regularly and often, they speedily relapse into sterility. This is not the case with clay soils, for if they are once supplied with a stock of fertilising matter they are capable of holding it, and disbursing it ungrudgingly over a long period. That clay soils are cold and reserved need not be charged against them, for their cool nature stands them in good stead in times of heat and

drought, and their reserve of plant food enables them to hold out in trying seasons.

It may be as important to know the nature of a soil as of a human being, and in the case of clay soils, although they are, or may be, sour and dour, these less amiable qualities are coupled with depth and tenacity of character—not a bad combination. These peculiarities of temperament suggest careful and judicious treatment, and constant co-operation with atmospheric changes of temperature and conditions as to moisture. Clay soils pulverize under frosts, and open in cracks during droughts, and these effects extend throughout their entire mass and to great depths. It is also worthy of remark that a tilth produced through atmospheric agencies is not so likely to “run together” or resume a plastic condition, as is the case with a forced tilth brought about by tillage implements. One of the greatest disappointments to which clay land farmers are liable is to find that a tilth obtained after much labour, has disappeared under the influence of heavy rains, the staple having once more coalesced into a tenacious and livery mass. This never occurs where the tilth is the result of “weathering,” for even winter and spring rains will not destroy the fine surface produced by frost.

Clay soils always work best after summer, and worst in spring. Bare-fallowing, for wheat in September and October, and autumn cultivation and deep ploughing in anticipation of potatoes and root crops in the spring, are principal items in the successful treatment of clay soils. In the former case the land gradually crumbles down under the influences of oxygen, changes of temperature, and moisture; and in the latter it is powerfully affected by frost and thaw, rain, and wind. The difference in appearance between newly ploughed clay land in March and in August is remarkable. In the one case it is glazed, compact, and planky, while in the other it is loose, crumbly, and loamy. Clay soils are best adapted for winter or autumn sown crops and are often untouchable until spring. They are natural wheat lands, and their wealth in mineral plant food, their power of retaining moisture, their depth and firm texture, are all conducive to the development of the wheat plant. To attempt early spring sowing is out of harmony with their nature, although it may be well done in the case of spring beans, or of oats after lea. Even if ploughing is practicable, harrowing and rolling are often rendered impossible by untimely rains that render the surface greasy, and the treading of horses disastrous. Light land farmers have often little idea of the difficulties of the occupiers of clay land, or the discomforts of walking over clay fields in wet weather with several pounds of soil sticking to each boot.

As to root cultivation, it is much more critical and uncertain on clay lands than on natural turnip soils. So far as quality and weight per acre are concerned, clay soils are able to rival any light soil, but there are difficulties at both ends of the process, as well as in the middle. There is (1) the difficulty of securing the requisite fineness of tilth; (2) the risk from the turnip fly; and (3) the often difficult problem as to the disposal of the crops by either carting them off or feeding them on the land. There is also the further possibility that the succeeding corn crop may not be benefited—may possibly be injured—through root cultivation, and hence it is that the bare-fallow still maintains its place. Still it is clear that root cultivation on clay soils has advanced, and that bare fallowing has receded in estimation, and a few remarks may be advanced as to the conditions under which this cultivation may be successfully followed on stiff clay soils. There is a class of clay land of so retentive a nature as to almost render arable cultivation impossible, and such land ought to be laid down to grass. Clays of decidedly stiff character may, however, be cultivated for roots by observing the principles of autumn cultivation, manuring, and ploughing, for, as already pointed out, autumn is the best season for working clay soils.

It is in this connection that steam power comes in as a most useful help, as it possesses advantages which exactly fit with the requirements of clay soils. Steam brings with it almost unlimited power, and can be applied just at the time when it is most useful. At no time of year and in no position is steam seen to greater advantage than in breaking up clay land stubbles after harvest, in preparation for potatoes, mangels, and other root crops. The various operations which are summed up in the expression “autumn cultivation,” include three distinct stages—cleaning, manuring, and deep ploughing. After the deep furrow has been given the land is allowed to rest. As the season progresses, or as soon as the land is dry enough, the winter furrow is generally cross ploughed, but on no account should this be attempted until the land moves freely. To attempt the work on wet land would be suicidal to the object intended, and it may be laid down as an axiom that every act of tillage on clay land should be governed by the weather. The peculiar temper of clay land will not brook unwarrantable interference, and if such a course is persisted in the cultivator will find that he has put back rather than forwarded his plans. The judicious management of clay land becomes a kind of instinct, acquired only by long practice, and newcomers who attempt to follow out their preconceived notions in a stiff land country may deeply repent

their temerity. The old saying that "seasons will beat the best of ye," is never more true than when applied to the management of clay land.

Wheat, oats, beans, clover, cabbages, potatoes, mangel-wurzel, and, in a less degree turnips and swedes, may all be cultivated on clay soils. Rotations of crops suitable to such soils are generally based upon the old system of fallow, wheat, beans, with alternation between beans and clover, or upon the six course : fallow, wheat ; clover, wheat ; beans, wheat—the fallow being either bare or cropped according to circumstances. The principal stress of work occurs during summer and autumn, simply because the land is generally unfit for continuous cultivation in winter and early spring. The sowing of clover and grass seed is, of course, easily managed upon a weathered surface, generally on young wheat, and the mangel and other root crops are drilled upon the tilth formed during the winter upon autumn ploughed land. If winter beans are sown the entire seeding of two-thirds of the arable land is accomplished in autumn besides the planting of winter vetches, and the preparation of stubble for root crops and potatoes. It is one of the disadvantages of clay land farming that the conditions are unfavourable for winter folding, but it is a mistake to think that this system need be entirely abandoned. Sheep may be folded on vetches, rape, cabbages, turnips, and clover lays from April to September inclusive, without injuring any ground, and occupiers of both light and heavy lands can transfer their flocks from one area to another according to the food supply.

The superiority of clay land in preserving its fertility has been already mentioned. Light land requires to be renovated for almost every crop, and a failure of roots tells seriously upon the succeeding barley, while wheat will scarcely yield satisfactorily unless a coat of manure is spread over the clover lair. Really strong land preserves its powers of production much longer than light soils, and in some cases allows of clover being mown and removed, and wheat straw being disposed of for years in succession. It seems in some cases as though it only required to be well tilled and thoroughly exposed to the air to develop plant food from its own staples, as was shown to be the case by Tull in the eighteenth century. The policy generally followed seems to be that of lightening it up and aerating it, as by fallowing. Clay land responds to all dressings of an opening nature such as long or strawy manure, town manure, ashes, lime, chalk, etc. In this respect it is the antithesis of really light soils, which need to be rolled, pressed, winter folded, and consolidated in every possible way either by lapse of time, heavy rains, or the treading

of horses. The contrast between the two classes of land is indeed most striking, and their management almost resolves itself into two distinct businesses. The season which suits the one does not suit the other, and the treatment which may be beneficial to the one may be injurious to the other. Clay land if once allowed to fall out of condition requires years to re-instate it, while a single good crop of roots fed with cake upon the land may set impoverished light land on its feet again. Running through the whole course of clay land management is the constant fear of upsetting it by attempting to work it at wrong times and in unfit condition, and this confers a skill upon the successful farmer which is much less constantly required by occupiers of light land, who have often only to plough, sow, and harrow, and supply fertilising matter in order to secure a crop.—“J.W.” in *The Field*.

**Management of the Shire Foal.**—Breeders of all domesticated animals are fully alive to the importance of carefully looking after the young animals during the first stage of their life. In their wild state they are hardier, and the dam may be trusted to attend to all their necessary wants, with the result that the fittest survive. But after many generations of a domesticated state of life, it is necessary that man must by his skill and intelligence assist in rearing the young stock. The Shire foal is no exception to the general rule, as during its first year of life it requires special attention. A horse may be made or marred during its foal time.

The care of the foal must be commenced really before its birth, by special attention to the pregnant mare. Sometimes a difficulty is experienced to get the mares in-foal, and the more highly bred and highly prized the stock the greater is the difficulty. The best mares are generally the shiest breeders—hence it is highly important when a mare is successfully started in the business of breeding that no pains should be spared to give the future progeny every opportunity to develop on the right lines. If the mare is not required for the work of the farm, and can be turned out to roam the pasture without shoes, she will require but little attention until her time is up, and will be more likely to have a happy foaling than if she is kept in a warm stable and highly fed. If it is necessary, however, that the mare should assist with the work of the farm, every care must be taken that she is not allowed to over-exert herself by hard pulling or by heavy shafting.

Working the land, if not too steep, is just the right sort of exercise for the in-foal mare, and she may be kept at it up to the time of foaling, and be quite as likely to foal luckily, as it is termed. Of

course, as the expected time approaches she must be allowed the use of a roomy box or building of some sort for her night quarters, where she can turn about and lie comfortably, and where there is nothing that can cause injury to herself or her foal as she turns about or lies down. This loose box must be kept thoroughly clean and well ventilated, and so that the mare may get well accustomed to her new quarters it is better to turn her into it at night for a few weeks before the foal is expected. The temperature of the box should not be high, say from 40deg. to 45deg., but free from draughts.

If the mare is kept very warm the foal will likely be tender and susceptible to cold. It is known that a foal will stand as cold and severe weather after birth as the mare has been accustomed to previously. We have had mares lying out all winter, foaling in the fields, sometimes in the snow, and the foals getting up and doing well, whilst those in the warm boxes were always catching cold. If there is no grass or other green food to be had the mare should be given a bran mash daily just to keep her bowels kind and easy.

As the time approaches, the mare must be closely observed. There is more variation of signs of approaching parturition in mares than in any of the other domestic animals. Sometimes a mare will foal quite suddenly with none of the usual symptoms appearing beforehand. Sometimes the usual sign of wax on the teats, and even of milk in the udder, may appear many days before the foal comes. In one or two extreme cases we have seen milk streaming from the teats for weeks before foaling, so that it is difficult to tell beforehand when the mare may foal. One of the inconveniences of having the mares out in the field is the difficulty of keeping them under observation. When the mare is in a box she may be watched, and it is easy to devise means by which she may be seen without disturbing her. A reliable man should be appointed to undertake the duty of night watching. Cases are known of mares foaling suddenly and easily, but with the membrane in which the foal is enveloped wrapped about its head, so that the foal was lost because it could not get a chance to breathe. I have known foals lost just for want of a little help to prevent them from being kept too long in the passage.

There are occasionally cases of wrong presentations, which may require the assistance of a skilled practitioner, but these cases do not appear so often among mares as among cows and ewes. Hence it is important that someone should be on the watch, and if the mare needs help be ready to afford it. If she is going on all right and is likely to accomplish the task by herself, it is better to let her do so, as meddling and fussing about her may make her irritable, and



if the foal comes all right and the mare is quiet, it is better to leave them by themselves to get acquainted with each other. Of course the navel of the foal should be attended to at once. Cases of loss through navel ill have been so frequent in recent years, and so difficult to treat successfully, that it is only by adopting preventive measures that it can be conquered. The germ of the disease is supposed to enter the system by the navel soon after birth, hence the importance of having the foaling-box well cleaned and disinfected. The disease seldom attacks those foaled out on the pastures.

The navel and surrounding parts should be well dressed with some strong disinfectant. Carbolic oil has been used successfully for this purpose. A still more effective dressing is iodoform, which is now used by the principal breeders, and is generally successful in warding off the disease if applied at once to the portion of the navel string attached to the foal.

In all cases of difficult parturition the mare must be examined by inserting the hand, dressed with carbolic oil, into the womb, and carefully but thoroughly removing every vestige of the after-birth. The smallest portion of the after-birth left to decay in the womb may lead to blood poisoning and the death of the mare. If the foal is all right he will soon scramble to his feet, and explore around in search of the teat, and if the mare is quiet in temper and the foal has all his wits about him, he will soon find it and start the business of life on his own account. In all such cases they are much better left to themselves, any interference tending only to delay matters. Sometimes, however, we have a weakly or a stupid foal which has to be held or guided to the teat. One of that sort is sometimes very troublesome, and requires a lot of patience and tact. It will not do to force it to the teat and to give it too much assistance, or it will lose the instinct of self-help. Only by patiently guiding it and allowing it to feel its own way can we succeed in getting it to work.

Sometimes a mare is so irritable and high strung that she cannot bear the touch of the foal on her udder. Much tact and patience are required in that case, and care must be taken that she does not injure the foal, or even frighten it from trying to suck, and if it is through the udder being very full and sore that she cannot bear the touch of the foal, it may be advisable to draw a little of the milk off by hand, which can be done by having the head firmly held and a foreleg held up. It may be necessary to have a foreleg held up a few times until she gets accustomed to the feeling of the foal's mouth on her udder.

Sometimes a foal gets costive and may require a dose of castor oil, but generally costiveness may be prevented by keeping the mare on

sloppy food. A foal also may be attacked by diarrhoea. We have effected a cure in this case by giving first a dose of castor oil, then a glass of port wine in which was mixed a little powdered chalk, about three times a day.

As it seems all the fashion now to have the horses docked the operation may be performed with the minimum of pain to the colt, and the minimum of trouble and risk to the owner when the foal is about eight days old. A piece of string and a sharp knife are all the implements required. The hair must be tied up firmly around the tail above the point of severance, and then with the knife snip it off at one of the joints of the tail, leaving the length of stump considered desirable. Unfortunately, the poor colts have to pay the extra premium of trouble for the loss of their tails during succeeding summers when flies are troublesome.

Foaling is always an anxious time with the farmer, and when the foals have come all right and are able to run out with their mothers a feeling of relief and thankfulness supervenes, as they are then likely to go on all right until weaning time. Sometimes, however, serious losses are incurred through foaling, and if a mare dies and leaves a foal the difficulty has to be faced of rearing an orphan foal. It is possible to rear it on cow's milk, diluted slightly with water and sweetened with sugar, if it gets it often and a little at a time. This involves a lot of care and attention, as any variation in the quality of milk, the length of time between the feeds, or the quantity taken, may upset the foal's stomach, and cause indigestion, which, occurring often, would retard progress. In a busy time the foal is apt to be forgotten or neglected. Three foals which unfortunately lost their mothers were reared as follows:—For one I fortunately had another mare to foal about the same time, and by adopting similar tactics to those adopted by shepherds when they have lambs left on their hands under similar circumstances, we persuaded the other mare to adopt the orphan foal. She was a good nurse, and reared the two foals splendidly under the full belief that they were both her own. Of course, we fed her judiciously. For the others we had not a nurse mare available, so in each case we persuaded a cow to adopt the orphan foal. There was at first a doubt as to whether the cow would act as mother to so strange a calf. Fortunately, the foals in both instances had learned to suck before their mothers died, so the difficulty was lessened. The plan adopted was to tie up the cow in a place by herself, selecting a quiet, upstanding Shorthorn cow for the purpose. The foal was taken to her frequently, and someone stood by the cow meanwhile to keep her from using her horns or her heels. As soon as the foal discovered

where the milk was to be had, which he did simply by exploring around, he quickly learned to help himself to it.

After the first day the foal was left in the same place with the cow, she being still tied up. He gradually got to cautiously stealing a drink, and the cow became reconciled to allowing him the privilege. After two days she got so used to the foal that she wanted him to come to suck. Then we tried them out in the field. The cow at once galloped round the field enjoying the liberty. The foal, never having been out before, did not understand such conduct, so stood still, staring in wonder. In about ten minutes the cow came back, smelled the foal all over, and in her own language persuaded him to "Come along, little fellow, and keep me company." So away the two went trotting off together, she looking after him as carefully as if he was her own calf. The cows in both instances suckled them all summer and reared them fairly well. They probably did not grow so well as if they had been nursed by a mare, but much better than they would have done if fed by hand, and at very much less expense and trouble.

Mares that are not required for the work of the farm may be turned out for the summer along with their foals, and if the pasture is fairly good will usually rear their foals well, although I must admit there is a great difference in the nursing capabilities of mares. Some do their foals so much better than others.

Before weaning the foals it is well for some little time to give the mares a small feed in crib or manger of oats and bran. It may be the mares do not require it, but it gives the foals an opportunity of learning to eat dry food before they are weaned, and if supplied with it after weaning they are not so likely to lose condition.

If a mare has to do some of the work of the farm as well as rear the colt, she ought to be liberally fed, having some sound oats as well as a good pasture. When the mare is at work the foal should be shut in some roomy box, where he cannot possibly hurt himself in his endeavours to get out. On the return of the mare from the work she should be allowed to cool and just a little of the hot milk drawn off before the colt is allowed to suck. Care should also be taken that the colt is not kept too long away from the mare, as if so he gets very hungry, is apt to suck too greedily, and thereby cause indigestion, which may result in scour or even inflammation.

The usual time for weaning is when the foal is about five months old. Some may be allowed to suck longer; but if the mare is again in foal it is not wise to allow a strong colt to keep sucking at her. Before weaning it is an advantage that the foal should have learned to eat out of the manger. If the mare is having some oats or bran

and the foal is in with her he will soon learn to eat a bit if the manger is not too high. Then when he is weaned he will be able to hold his own among the other foals.

In weaning foals it is better to have two or more together. They are company for each other, and more quickly forget their mothers. A single foal taken from its mother and kept by itself is greatly to be pitied. A handy, well-fenced paddock with a shed in it is a very convenient place to keep weaning colts in, the mares being kept out of sight and hearing for a week. The colts will have an opportunity to take plenty of exercise in the paddock, whilst the shed will afford a shelter at night or during stormy weather.

After weaning foals they should be well fed. A liberal allowance of oats, bran, and hay chaff—the quantity to be regulated by the character of the pasture and the state of the weather—should be given twice a day. The reasons for such treatment are obvious: they miss the mother's milk, the autumn grass is less nutritious than the summer grass, the nights get longer and colder, and it is well known that a colt, if well fed, will make greater and more equal progress during the first winter than it will any time after.

In the rearing of young horses the chief objects to aim at are the natural growth of bone and muscle, the development of the respiratory organs, strength of constitution and good sound feet. To attain these objects the weaned foal must have a proper supply of good food and plenty of exercise. There is no economy in keeping him short of food, and it is a bad plan to keep him confined in a small place, where he has not the opportunity of exercising his limbs. Of course, there is a danger of injury from over-feeding. Such danger is more likely to arise when foals are being forced on for showing, but is not likely to result with colts kept in a natural state and having the run of a paddock. The best food for the winter is good sweet hay, oats, and bran. The oats should be bruised. Some recommend that the mixture should be scalded. That I do not consider necessary where the colts have the run of a grass field.

The growth of their feet should also be watched. A visit to the blacksmith occasionally and a little judicious rasping will help to keep the feet in good form. This is more especially needed with colts that are inclined to wear their hoofs more on one side than the other. With such hoofs frequent trimming is necessary. In exceptional cases it may be necessary to put light shoes on, but if that can be avoided so much the better, as their feet will generally grow and develop more freely when running without shoes.—GEORGE MACQUEEN in *Farmer and Stock-Breeder Year Book*.

**Producers and Manufacturers.**—Mr. Kennedy, a Scottish manufacturer, addressing a large gathering of students recently, said :— he often thought it was a pity that there was not more investigation on the part of those who produced various forms of raw material into the actual requirements of the manufacturers who used these materials. If there was more practical knowledge on the part of the producers as to the details of what their product was required for, it would in many cases be of great help and value to them. His firm as maltsters often found themselves in the position of being in conflict with farmers as to the question of the quality and value of their grain, and that arose very largely from the fact that farmers, as a class, knew nothing whatever of the process of malting or the requirements of the maltster. After referring to what had been and was being done by the Governments of America and Germany in the education of the agricultural population, he said it was most unfortunate that our Government, irrespective of party, had not done more for agriculture in this country in the direction of educating the young farmers and assisting them in any technical difficulties as to either seed, soil cultivation or harvesting. As a result of the Germans producing a better type of corn, they could always command some shillings per quarter more than the finest barley produced in these islands. It seemed regrettable to him that in spite of the highly developed farms in this country, farmed by men of the best education, they had not succeeded in capturing the market and keeping the foreigner out. As to the question of harvesting, one of the things which seemed incomprehensible to him was that greater care was not taken by the farmer in reaping his fields after seasons when they had broken or bad weather. In one particular field there might be hollows, and in these hollows the barley would get lodged, or even laid. When suitable weather came, instead of reaping round these bad spots and gathering in the grain from the good parts of the field and stooking these by themselves, the farmer, in many cases, cut down the whole field with the result that the damaged portion of the crop was stacked with the rest. When it came to be threshed, these bad pickles were found throughout the whole parcel, and what would probably have been a fine lot of barley, for which a high price could have been obtained, was so debased by the presence of these bad pickles that no maltster could take it except for second-rate or third-rate purposes. Another point was that farmers did not exercise sufficient judgment when it came to the time of stacking to get their crop into better condition

before loading. He was quite aware of the fact that the farmer was so dependent on the weather that he had often to stack his grain against his better inclinations, but frequently, even in good harvest weather, when there was no need for undue haste, grain was stacked in far too raw a condition, the result being the heating of the grain in the stack, which was fatal. Another of the acts of carelessness among farmers which the maltsters had often bitterly to complain of was that when threshing, just as in the case of reaping, they took no care to shave the outside of the stack and remove sprouted grain, or to set aside the tops and bottoms of the stacks. These tops and bottoms, having been saturated and damaged, when mixed with the rest of the stack produced the same result as neglecting the hollows of fields; the damaged, sprouted, and weathered pickles spoiled the whole lot, and the farmer lost heavily, whereas, if he had exercised a little ordinary care, these tops and bottoms which probably would have amounted only to a few sacks full, could have been kept out and either fed on the farm or sold for a fair price, thus permitting him to obtain the highest price for the good portion of the grain.—From *The Scottish Farmer*.

**Farmyard Manure and its Manifold Uses.**—Farmyard manure is very rightly regarded as the backbone of British husbandry, “there is nothing like muck,” being the dictum of almost every farmer: and, certainly there is nothing like it for producing bountiful crops of high quality, and no other substance which we can apply to the land with more absolute certainty that the result will amply reward us. This, perhaps one of its greatest charms, is due to the fact that it is, in every sense of the word, a general manure, supplying at once all the elements which plants require for their nutrition, and being suitable alike for all lands and all crops. In the carrying out of field experiments it is most interesting to note with what confidence both farmers and their labourers regard the prospects of the plot which has received a liberal dressing of farmyard manure. When the trials are at an end, and the weighing up shows that their old friend has once more gained the coveted position of first place in the series, there seems to be a quiet smile lurking somewhere, which appears to mean, “We told you so.”

Farmyard manure is, of course, a bye-product, although at the same time it is a very valuable one. It consists of the manure produced by the various animals, which are, during some portion of the year, housed at the homestead, together with the litter which has been employed for their accommodation. Such being the case,

it is at once obvious that its composition is hardly likely to be of constant character, and, when we come to consider the matter, we very quickly find that its value and quality depend upon a number of circumstances. These we might tabulate as follows :—

- (1) The food which is employed.
- (2) The litter which is made use of.
- (3) The description of animal producing the manure.
- (4) The method of manufacture.
- (5) The subsequent treatment.

We must now devote a few words to each of these points, taking them in the order in which they are placed above. With regard to the first of these—the food which is employed—it will readily be seen that this must exert a very considerable influence. The dung excreted by the animal is the residuum of the food which it is unable to digest and assimilate, and the residuum of a highly nutritious food, rich in nitrogen, phosphoric acid and potash, will naturally contain a higher proportion of these substances than the residue of some feeding stuff which is poor in these important constituents. In other words, the manure of cake-fed animals, other things being equal, will be far richer than that which is produced when turnips and straw alone constitute the dietary.

The character of the litter will affect the composition of the manure both directly and indirectly. The manurial ingredients of the litter, of course, find their way, wholesale and unaltered, into the heap, so that its analysis must influence the resulting product, and, besides this, its absorbent or non-absorbent properties play an important part in the preservation of the urine. Manure manufactured with wheat straw as litter, when compared with that in which peat moss or bracken has been employed, would show some decided differences.

Our third point is a very important one, and should never be lost sight of when considering this question. I am afraid there is a tendency to regard farmyard manure as a definite substance, however it has been produced and however treated. There could be no greater mistake than this. A hard-worked horse, a young, growing animal, and a milking cow obviously take a very great deal out of their food ; the horse to make good the muscle which is broken down by its exertion, the young animal in order to build up its frame and body, and the cow to provide the rich flow of milk which is expected of her. The manure produced by such animals will consequently be comparatively poor. The pampered bullock, on the other hand, living a life of luxurious ease in its comfortable box, is practically

called upon to make no bodily exertion whatsoever, and is only increasing in live weight by laying on a considerable quantity of fat. Consequently much that is valuable in the food is not required by the animal, and passes through it to the manure heap.

The method of manufacture, by which we mean chiefly the way in which the animals are housed, has a great influence on the value of the manure. Valuable substances in the manure are soluble, or very quickly become soluble as soon as any decomposition takes place. This being the case, if the manure is left lying about in large open yards, the surrounding buildings and sheds being all unspouted it will obviously be washed by the rainfall to a very great extent. The dark brown colour of the stream which drains from such a yard at once shows us that something is being carried away in addition to the water itself. With farmyard manure manufactured under these conditions compare the rich fertilising material which is produced by a number of bullocks housed in boxes or covered yards. Here there is no washing and all the valuable substances, both in the solid and liquid excrements of the animals, are preserved in their entirety.

The subsequent treatment of the manure must also be referred to. If it is left for a considerable time after manufacture lying about in the yard, the evils alluded to above are, of course, very much intensified. If placed carefully in a really well-formed heap, and, perhaps, covered with a layer of earth, the loss on storage, which is almost inevitable, is reduced to a minimum. It is as well to remember, however, that farmyard manure is never really safe till it has actually been placed on the land, which is its ultimate destination.

This statement at once gives us the key to the ideal method of utilisation. Get it on to the land as soon after it has been produced as possible, for then we have every right to expect that we shall reap the maximum benefit. Even if it is left on the surface for some time, little loss would occur through evaporation, and, in wet weather, the soluble matter would be simply washed into the soil. This is, of course, an ideal method, which takes place when cattle are depastured and sheep are folded, but it would be impossible to carry out in ordinary practice, because in many cases during the time the manure is being produced the land to which it is to be applied would not be ready to receive it. Still, if we keep this idea in front of us it will assist to frame our practice on sound lines.

With regard to the uses of farmyard manure, one of its chief features is that it is almost impossible to put it to any improper use. It is suitable for all soils, all climates, and all crops ; this is one of the great advantages it possesses over the more concentrated fertilisers.



In ordinary farm practice the greater part of the farmyard manure finds its way on to the wheat land, and on to that intended for roots, using this term in its widest agricultural sense, and including not only mangels, swedes and turnips, but such crops as potatoes, cabbages, rape and kale, and it is difficult to see how this practice can well be improved upon. The land which is devoted to the various forms of root crops is really taking the place of the fallow, and so it very rightly receives its share of farmyard manure to enable it to carry on the succession of crops of which the rotation consists. If, however, the rotation was allowed to run right to its end, without any manurial help, the wheat crop might be somewhat thin in character, and so, at this point, the dung cart should again make its appearance.

Where any manure can be set aside for use on the grass land, its application is sure to prove beneficial, but in ordinary practice, where mixed farming prevails, it is seldom that any can be spared for this purpose. However, where it can be so used, it should be, for a dressing of ten tons per acre may be the means of converting a one ton crop into something like two tons of hay per acre.

Taking all the above points into consideration, it will at once be seen what an important and valuable substance farmyard manure really is, what care should be taken of it (as far as common-sense and practice will allow), with what success it may be employed, and how well it deserves the position which it has won in the estimation of the agriculturist.—R. E. C. BURDER in *The Agricultural Gazette*.

**Breeding of Store Stock—Apathy of the Dairy Farmer.**—Interest has been awakened in the breeding and rearing of store stock by the events of the past six months. Recognizing the susceptibility to interruption of supplies drawn from distances and the risk incurred to the permanent breeding of flocks and herds, graziers, as well as breeders, are considering the possibilities of raising at home a sufficient number of cattle to occupy the pastures in summer and to fill the fattening sheds in the arable districts in winter. The object, of course, is to avoid a recurrence of incidents that, for a time, deprived graziers of their winter requirements, and excited apprehension as to the safety of breeding cattle and sheep. The fact is also kept in view that if Ireland resolves, as is proposed, to fatten a larger proportion of her cattle, the imports from that country will diminish, or perhaps shrink to a negligible quantity.

The present is an appropriate time for looking closely into this question. Not only is the subject uppermost in the agricultural

mind, but there is the promise of financial support from the Development Commission and the Board of Agriculture to stimulate the movement. An examination of the facts and figures available suggests the possibility of an easy solution. All that is necessary is to make a better use of the material already at hand. The number of store stock we import from Ireland is considerably less than the aggregate of calves sacrificed to the convenience of the dairy farmer. The agricultural statistics give the number of cows in England and Wales as 1,850,000, and the animals under one year old as 1,142,000, leaving a margin of over 700,000 calves unaccounted for, as compared with 500,000 store cattle introduced from Ireland. The solution of the problem must be found in turning to better account the three-quarters of a million of calves which dairy farmers will not take the trouble to rear. The first step in any scheme to change this state of things must be to imbue the dairy farmer with a better understanding of his opportunities in the raising of good class grazing animals. His neglect of calf-rearing is accounted for partly by the poor class of animals he breeds and partly by defective appreciation of the business as a source of profit. He is so absorbed in making the most of the new milk market that this useful supplementary business is overlooked. A few have tried calf-rearing, but with disappointing results, the milk so used bringing a smaller return than if it had been sold at contract price, if, indeed, there was not a balance on the wrong side. It is not difficult to understand the failure of some of the experiments embarked upon, in view of the manner in which the business was conducted. The cows in an average herd are suitable for the breeding of grazing bullocks, but the bulls used are generally of the cheapest order that can be procured and are quite unfit to beget calves that will respond generously to good feeding at an early age or later when being fattened for the butcher. The grazier is as discriminating in the choice of his bullocks as the dairy farmer is in making his selection of cows, and it is the inferior breeding and quality of the calves from the average herd that prevent their making a good market.

The improvement in the quality of Irish cattle within the past 15 years is an indication of what could be obtained by similar means in England. Those who remember the lanky oxen of mature age that Ireland was wont to send us in the closing decades of last century will admit that good progress has been made since the Government scheme has been in operation. At that time three and four year old steers predominated, whereas most of those imported now are under three years, and a fair proportion less than two years old. The use of better bulls has reduced the average age

a full year, without changing the price, the progeny of the pure-bred sires being so much more responsive to good management. The cattle-breeding scheme in Ireland has, to a large extent, dissipated the antiquated belief that the growth and fattening of stock were distinct and incompatible processes. A large number of the Irish stores are still raised on this erroneous plan and reach the English markets in a condition that makes them unattractive to graziers and unprofitable to the seller. But the example of those breeders who pursue a more intelligent policy, and feed in a way that gives the stock an opportunity for revealing the qualities inherited from their well-bred sires, is gradually working improvement, with resulting benefit to all through whose hands they pass. There are also the experiences of the Congested Districts Board in the crofter areas of Scotland as proof of what can be accomplished through the distribution of good class bulls. The reputation that the whole of the north of Scotland has acquired for the quality of its beef cattle is testimony to the wisdom of using bulls of select breeding and of the correct type. Many of the landowners and larger farmers have done for Scotland what the Government are doing for Ireland, and whatever difference there may be between the store stock of the two countries is largely a matter of management of the calves before and after weaning.

The Irish and Scottish examples cannot apply in every detail in the majority of English counties. The new milk market is of such engrossing importance to the dairy farmers of the south that they will not subordinate it to what can only amount to a supplementary pursuit. It would be hopeless to predict success for any scheme which would diminish the output of milk. Whatever plan is attempted must leave unimpaired the milking properties of the stock. The prospective Government scheme will have to be devised on a principle with no higher ambition—in its application to dairy farmers—than to make a better use of what is an unavoidable by-product in the production of milk. This circumstance limits to a certain extent the scope of the project, although it would be a mistake to assume that milk-selling and calf-rearing are irreconcilable pursuits. Greater difficulties would have to be met if it were the practice with all dairy farmers to breed their own replenishing stock. Those who pay attention to pedigree or proceed on a plan of line breeding will naturally act upon their own judgment in the selection of sires. With a great many, however, it is the custom to give little consideration to the bull used, the only factor that weighs with them being the price he costs. It would not be a hard matter to induce this numerous class to substitute a subsidized bull, presumably of a

greatly superior type, for the nondescript sire they have been in the habit of using. If this can be done, the first step will have been accomplished in achieving the object the Commissioners have in view. It will be desirable to respect the local preferences in making the choice of breeds. It is possible that educative work will have to be attempted, for it would not make for success or the smooth working of the scheme to disregard the prevailing opinion in a district. It is possible to cite private examples of success in the crossing of milking and beeving animals without detriment to the former. There are no two more dissimilar types than the Ayrshire and the Aberdeen-Angus, and these have been crossed with good results. The late Mr. John Speir, whose experiments were numerous and always instructive, found that the value of the calves from an Ayrshire was increased £2 per head when sired by a black bull. He restricted crossing to the cows he did not require for reproducing true to type, and with all breeds, Shorthorn, Jersey, or Holstein, similar limitations would apply. There is great scope, however, for a carefully devised scheme of cross-breeding, and if the offspring of the dairy herds could be increased in value by even £1 per head the gain would be important both for the individual and for the country.

It is not in breeding only that educational work will have to be undertaken. It is equally necessary to provide a sound working basis for the rearing of the calves. There is great room for improvement in the feeding and general treatment of young stock. The fundamental principle that an animal should never be allowed to lose its calf flesh cannot be too constantly or too strongly emphasized. The breeders of pedigree cattle contrive to keep their calves in a progressive state from birth onwards, and, although the raiser of grazing stock must pay stricter attention to economy, his ambition should be the same, the only difference being that the rate of growth is less pronounced. This side of the question is important enough to merit independent consideration, first, of an educational nature, and, afterwards, for the dissemination of sound information. The experiments of the Royal Agricultural Society at Woburn supply important evidence on the question of economic calf rearing. It is encouraging to learn that in Essex and in certain other dairying counties farmers are giving greater attention to the question of calf-rearing. They are considering the re-organisation of their systems of breeding and are carrying out experiments of an exceedingly interesting nature in the growing of materials which will cheapen the cost of feeding and generally give better economic returns.—*The Times*.

**Fertilisers: Their World-Wide Importance.**—It is a truism to say that the food supplies of the inhabitants of all the old thickly populated countries in the world are dependent on the maintenance of the productive capacity of cultivated soils, and that the ever-growing populations could not be fed without great difficulty if the land were cultivated on the systems practised by our forefathers. To them the use of concentrated feeding stuffs and artificial manures was unknown. They depended on farmyard manure and upon a system of fallowing to keep up the fertility of their farms. Of the real nature of farmyard manure little was known. It was allowed to remain for months in open yards or in heaps, losing a great part of its fertilising quality through the drainage of its most valuable constituents. Moreover, the quantity of the material available, such as it was, was not nearly sufficient to replace the plant-foods extracted year after year by the crops. Hence had such methods continued much longer, the soil would have been gradually but inevitably impoverished with the consequence of diminished productiveness for the support of mankind and stock.

While agriculture thus languished in old countries from worn-out soils, there would have been an enormously increased supply from the Colonies and America, which would have been able to fill up the gap for a time, but the prices of grain and meat would have advanced to such an extent that the working classes would have been subjected to great hardships entailing labour-unrest far more acute than now exists.

Just about the time when it was becoming evident that the productive power of European soils was diminishing, the pregnant discovery was made that the fertility of soils could be restored and maintained by the return of certain constituents extracted by the crops. The gratitude of the world will always be due to the Continental and English explorers, whose investigations led to our present knowledge of plant life, and based upon that knowledge, the development of the means of preventing the exhaustion of the soil. Although our knowledge about the processes of plant life, gained by years of quiet research work, is far from complete, still, we know that crops take from the soil among other constituents, nitrogen, phosphoric acid, potash and lime, and that these must be restored in order to keep up the fertility of the soil, whereas the other constituents generally appear to exist in sufficient quantities in most soils.

It was this knowledge that opened the way to the use of guano, nitrate of soda, and chemical manures in general, although the introduction of the latter was not an easy matter. Farmers quickly

recognised the virtue of Peruvian guano, but against chemical manures—"chemical stuff," as it was called—there was much prejudice.

This prejudice has long since died out, except in odd corners of the world, and at the present time the use of chemical fertilisers is not only enormous, but rapidly increasing, as their employment extends to new countries, and farmers in old countries use larger quantities.

If the employment of fertilisers has already been of striking benefit, it is certain that a still greater future lies before them. The average crops grown in Europe and in the United States and Canada, are small in comparison to what they will be when fertilisers are used more generally and more freely. Even in this country an intelligent and more extensive use of fertilisers would be of great benefit. Many pastures could be made to yield nearly double what they do now, and cereals, potatoes and roots could be stimulated to produce more abundantly. This fact has been amply demonstrated at experimental stations and on some up-to-date farms.

Fortunately for the world, there is no danger of the supplies of fertilising materials—nitrogen, phosphates and potash—growing scarce, and the competition among manufacturers of chemical manures will prevent their cost from becoming exorbitant.

The prospects for farmers has not been brighter than it is now for many years, and if we should be blessed with favourable weather there is a prosperous time ahead.—*Mark Lane Express Almanac.*

**Farm Accounts.**—The keeping of accounts is not a matter in which the average farmer excels. It is to be feared that the great majority make no reckoning of costs and revenues of any description worthy of the name. Very often the bank book is the only record the farmer possesses of his financial transactions, and the only reflex of his pecuniary position. The younger generation goes a little beyond this stage, most of them making independent jottings of expenditure and income, individual items and aggregate amounts being noted with sufficient detail and accuracy to provide a clue as to the relative prosperity of the different sections of the farming system and the aggregate result of the whole. The prominent attention given to book-keeping at agricultural colleges and in educational schemes generally, has influenced farmers considerably. They do not, as a class, care for book-keeping or desk work of any kind, but they recognise the advantages of knowing how they stand in financial matters, and also of being in a position to say approximately what branches of their business yield them the best returns.

The keeping of accounts is the only means of arriving at this information. It is important, however, that the system adopted should be suitable to a business of exceptional intricacy as well as sound in principle. It would be easy to elaborate accounts to a needless and even to a misleading extent. In some cases the practice is followed of keeping separate records for each crop, and in others each field has an account to itself. In our opinion the information to be gained from either method is disproportionate to the labour involved, while unless the work be performed by someone whose time and energies might be put to much better use, the results are quite as likely to mislead as to enlighten the farmer.

Some farmers go so far as to think that excessive complication or sub-division of accounts is as little to be commended as the keeping of no accounts at all. There is a good deal to be said in support of this view. In the first place book-keeping is not directly productive labour. It lends itself easily and offers temptations to useless elaboration, but it will serve the purpose of the farmer to stop short at a measure of generalisation that will give him an approximate idea of his position and of the contributory influence of each respective department towards the whole. It is, in a sense, sufficient that the farmer should know how business stands at any particular period. If things are going well with him there may be no occasion to examine closely the various items. This policy, however, is out of harmony with the times. It is well to obtain some idea of departmental finance with a view either to minimise losses if any are shown, or to improve the profits which can never be too great. The apportioning of farm accounts, however, is an exceedingly intricate and difficult matter. It is not easy in any business, but in farming, and especially in mixed husbandry where the practices dovetail so nicely and where no one is independent of the others, precise differentiation is almost impossible. We have known several attempts to keep separate accounts for different crops, different fields, and different classes of stock, but the result may be described as more interesting to statisticians than useful to the farmer. Book-keeping should not be attempted on too elaborate a system, not only because of the difficulty of accurately apportioning revenue and expenditure, but also for the reason that in most cases the cost would be out of proportion to the return.

It is true that without some form of detailed accounts the farmer may sometimes be at a loss to ascertain which branch of his business pays him best, and, in cases of necessity, of making wise modifications. To the observant man of business, the adaptation of practice to suit the circumstances of soil, climate, and markets,

seldom presents serious difficulty. The best system of accounts that can be devised will not alter the general scheme, but only the adjustment of details so as to effect small economies. Examples of the superficial influences of book-keeping are seen in every district where distinctive farming methods are in operation. The growing of wheat and other cereals was restricted, but not abandoned, even when the prices were at their lowest; nor was the fattening of cattle relinquished in Norfolk and other arable counties during the spell of low prices some years ago. As a rule the cultivation of crops and the keeping of live stock are essential parts of a well-planned general scheme, and the direct contribution they severally make to the aggregate revenue and the net profit, though important, does not represent their full value to the farmer. Fluctuations in markets as in yields, in outlay as in income, are a normal condition with farmers as with other men of business, and therefore they have to appraise the worth of any particular link in the chain of operations, not so much on its value as a direct source of revenue, as on its effect in binding together the whole fabric and thus indirectly in making more profitable the branches that may at the time be more prosperous. The enlightened farmer will insist upon the keeping of accounts, but he will not deem it necessary or advisable to equip an accountant's office with all the provisions for double entry and fine discrimination which is necessary with joint stock concerns, but which would be useless and cumbersome on the farm.—*The Field*.

**Feeding for Milk.**—Mr. William Stevenson, B.Sc., lecturer on dairying to the West of Scotland Agricultural College, in a lecture on "Feeding for Milk," said the most important factor in milk production was undoubtedly the cow, but next to the cow was the food she consumed. The quantity of food consumed had a great influence upon the quantity of milk yielded. But food could be used to increase the milk yield only up to a certain point, and after a certain point each subsequent addition to the food produced only a diminishing quantity of milk. Thus a point in feeding was soon reached at which it was no longer profitable to further increase the food. This was exactly the point which every dairy farmer should wish to determine, but this point varied very widely with different conditions. When food was cheap he could give more than when food was dear. When milk was dear he could profitably give more food to force the milk than when milk was cheap. To a good type of cow he could give more food than to an inferior cow, and to a cow lately calved more than to a cow which had calved some time,



The only reliable guide to the amount of food which could be utilised, to the profit of the owner of the cow, was a reliable record—not only a milk record, but a record also of the amount of foods and the price of the foods, and of the prices received for the milk. The farmer who was working without such a record was working largely in the dark, and making only very vague guesses as to the financial returns from the most important department of his business. The food supply was most profitably given when given in proportion to the milk yielded. As to the best relation between milk yield and food supply, they could be guided by the results of Dr. Kellner's long series of investigations. When importance began to be attached to the fat percentage of the milk most farmers imagined they could meet almost any requirement in this respect by giving more fatty foods to their cows. But the results of practically all of the many experiments made, both at home and abroad, indicated that, provided the cows were suitably fed, any improvement in the feeding did not appreciably or permanently improve the quality of the milk. It was not possible to raise a 3 per cent. cow to a 4 per cent. cow by feeding. To raise the fat percentage appreciably they had to resort to selection and care in breeding. Yet good feeding had the effect of improving the fat percentage, through several generations, and bad feeding would result in poorer milk. Food had a distinct influence on the nature of the milk solids. A cow could be quite successfully fed, so as to yield a large quantity of milk, without considering, in any but a practical way, the composition of the foods, but the advantage of compounding the ration according to the teaching of science would be felt in the greater economy of production. The object should be to so balance the ration with respect to digestible protein and non-protein that each would be used for the purpose which it served best. Four gallons of milk contained a large amount of protein, and unless the cow received this amount, plus the amount required for maintenance, it could not continue to give four gallons a day for very long. The cattle-food manufacturer scored over the farmer, because he had studied these matters and knew how to compound even cheap foods into dear compound cakes or meals. In compounding his own cattle foods the farmer should choose from the suitable foods and from the cheapest of these, by unit price, and in combining the foods should give proper heed to the amount of digestible protein they contained. The cereal by-products were not so popular with dairy farmers as they ought to be. Brewers' grains were especially useful when cows were beginning to fall off in their milk yield. Beans and peas were old favourites, but were too dear to buy extensively. Roots, straw,

and hay were the cheaper foods per unit, and could be supplemented with cheap concentrated foods rich in protein. Cotton cake, gluten feed, etc., were better value at present prices than beans or peas. A cow required about 0.7 lb. of digestible protein per day for maintenance only, contained in a total dry matter allowance of 15 to 20 lbs. A cow in full milk should have about 28 lbs. of dry matter per day in her food, containing 0.6 lb. of digestible protein for every gallon of milk in addition to the 0.7 lb. for maintenance; that was, for three gallons of milk,  $2\frac{1}{2}$  lbs. of digestible protein. The practical working out of this method required some calculation, but those who would take the trouble would find it extremely interesting. Where there were few or no roots the ration should include a laxative, such as treacle, linseed, linseed cake, bran, or rice meal. If roots were very cheap and plentiful a large allowance—112 lbs.—could be given with quite good results; indeed, the cost of production might be lessened in this way. The best and cheapest of all foods for milk production was pasture grass, and, in his opinion, at present prices, the more milk a farmer produced from grass and the less from purchased foods the better for his pocket; the profit was obtained during the summer months. The practice of giving cattle foods uncooked was recommended by the lecturer.—From *The Scottish Farmer*.

**Devon Cattle.**—I do not propose to attempt to trace the origin of Devons or to go into the question of who has done most to bring them to their present state of perfection, but shall speak of them as they exist at the present day.

Many would briefly describe the present type as the Somerset Devon, as for generations this class of beast has been bred on the Somerset side of the Devon and Somerset boundary more, perhaps, than anywhere else. It is possible that in the old days they were bred a good deal for working oxen. But by breeding for an active good-sized, strongly-constituted animal, as evenly fleshed as possible to suit the butchers, and at the same time keeping an eye on their milking capacity, there is no doubt the originators left us dual purpose animals that cannot be surpassed.

The old North Devon small type is gradually ceasing to exist. For quality there was no breed to equal them, but they have gradually given way to the larger present-day type of Devon. This larger type is now a permanency, and I conclude the question of which was the best rent-payer has carried most weight in settling the type.

It was remarked in the showyard years ago that the Devons

were in a transition stage, but the fact was the larger Devons, which have been bred for hundreds of years in certain districts but not much shown, were being appreciated by the public at their true value, and those who were in the habit of showing, were obliged, in self-defence, to show this type, if they wanted to win prizes.

It was a great surprise to cattle breeders both in this country and abroad to see by the Board of Agriculture's report on the agricultural output of Great Britain that Devons stood second only to Shorthorns in the number of animals of different breeds in England. The figures are so interesting that I give them :—

Shorthorn	..	..	..	..	4,413,040
Devon	..	..	..	..	454,694
Ayrshire	..	..	..	..	440,000
Hereford	..	..	..	..	384,877
Aberdeen-Angus	..	..	..	..	193,960
Welsh	..	..	..	..	248,041
Irish	..	..	..	..	188,023
Shorthorn Red Lincoln	..	..	..	..	168,790
Highland Kyloes	..	..	..	..	99,804
South Devon	..	..	..	..	96,991
Channel Islands	..	..	..	..	101,233
Galloway	..	..	..	..	31,265
Red Polled or Norfolk	..	..	..	..	27,232
Sussex	..	..	..	..	19,660
Other breeds or descriptions	..	..	..	..	37,164
					<hr/>
					6,905,134
					<hr/>

The breed increases in popularity. Devons are yearly spreading east and north, and the marvellous results of the Devon grazing steers sent to the Midland districts has had a great deal to do with the increased demand for this breed.

I have personally been taking a keen interest in the export of the Devon to foreign parts, and there is no doubt if the class of Devon referred to had been shown and exported forty years ago they would hold a very different position now. The breed for export has suffered from three exceptional causes :—

- (1) Generally speaking, till within the last fifteen years, the animals shown were the small type, and they were considered too small by the foreign buyer.
- (2) Being bred almost entirely in the West of England they suffer considerably through not making a good show when the Royal Agricultural Society's Exhibition is in the north and east, for the Royal Show is where many foreign buyers form their opinions.

- (3) They were not properly pushed or advertised abroad in the early days of the export trade.

People at home and abroad are, however, having their eyes opened to the favourable points of the present-day Devon, and the steps the Devon Cattle Breeders' Society are taking, offering prizes for milking competitions, will help greatly in the future.

Constitution is one of the strong points of the Devon. Being kept much in the open and housed but little, this breed seldom reacts to the tuberculin test.

Quite recently a breeder in the Midlands, who was very partial to one of the popular breeds, had a farm manager, who was keen on the Devons, so they had a thoroughly practical test of the merits of the respective breeds. They laid out equal amounts on equal numbers of yearlings of the respective breeds, and weighed all the winter food most carefully for some years. The result was that for early maturity and price realised the Devons equalled their competitors. Why the Devon is such a signal success is in its being a good dual purpose animal. Steers are produced of the very finest quality, weighing 16 to 17 cwt. under three years of age, and the dams of these steers will give over 30lbs. of milk, with 4.5 per cent. butter fat.

In Dorsetshire some dairy herds are composed entirely of Devons, and in many instances the dairyman rents the cows. That only Devons are kept speaks well for the breed, for many of the farms are cold and bleak. I believe the dairyman, as a rule, will not accept a heifer that does not give 20lb. of milk daily at her first calving; but I have seen cows in these herds that give over 50lbs. daily. Recently a dairy herd of Devons has been started in Yorkshire with the greatest success. The owner says that many of his cows reach five gallons per day, and the average of the whole herd is 4.3 per cent. butter fat, when on winter food. So that if milk is required there is no difficulty in finding the milking Devon. I hope we shall see the Devon breeders taking still further trouble over the milk question, and perhaps the day is not far distant when at bull sales we shall see in the catalogue what milk the dam and dam of the sire of some of the bulls gave; and when we do, although we claim that the strong point of the Devon is its dual character, still, the bulls with the milking character, will fetch higher prices.

There will be in the near future a big demand for Devons abroad. In some countries that have been buying regularly for years on a small scale, and thoroughly testing the Devons, breeders have made up their minds to place orders on a much larger scale in the near future.

I have shipped Devons to Australia, New Zealand, Japan, Argentina, Uruguay, Brazil, Venezuela, Patagonia, South Africa, East Africa, Rhodesia, India, and the Continent, and the reports received leave no doubt as to their suitability for the above countries.

I was induced to breed Devons as I believed they had a very big future abroad, and also that it was possible to lay the foundation of a herd of the first rank on less capital than with any other fashionable breed. I found a very good selection of females could be secured at fifty guineas each.

I have felt proud at the position allotted to the Devon in a recent correspondence in South African papers as to which is the best breed of cattle to adopt, but it would, I believe, be difficult to find one breed of cattle entirely suitable to all parts of a country.—CHARLES MORRIS, in *Farmer and Stockbreeder Year Book*.

**Pig-Breeding : Use Versus Appearance**—Our present object is to mention some few of those conditions in connection with pig-breeding which appear to us to be open to improvement in one of at least two ways, either to the monetary advantage of the producer, or to the benefit of the consumer. We purpose to review some of our chief breeds of pigs, particularly noting those points which appear to have a much higher value to non-practical men than to those who look upon the pig as a machine for the manufacture of meat.

There are several local or county breeds of pigs which have not yet recognised herd books in which to record the pedigrees of individual members of the particular breed, but there exist, or have existed, in this country, herd books for the registration of the pedigrees of Berkshires, Large Blacks, Large Whites, Middle Whites, Lincolnshire Curly Coats, Small Blacks, Small Whites, and Tamworths. The Berkshire has, within the knowledge of some few persons, undergone several changes during the last sixty years ; we remember it in its unimproved or unfashionable days, a long and deep-sided pig with well-developed hams, comparatively light fore-quarters, fairly long head and light jowls, fine in the bone and skin, the hair being of a black, white, and sandy spotted colour. It was hardy, prolific, and grew when young as well as pigs of other types. From the brief description given it will be correctly inferred that the Berkshire of six or seven decades ago was as well suited to the wants of the practical farmer as it was to the requirements of the bacon-curer ; indeed, our curers of the last generation were quite satisfied with the type of Berkshire then in vogue, as the pigs furnished a long side of bacon possessing a large proportion of fine

quality lean meat to the fat, and a comparatively small quantity of bone. The Irish bacon-curers were equally well pleased with the Berkshires, and imported numbers of them for the purpose of improving the native pigs. As is too often the case, this great popularity was not an unmixed blessing; men who were not thoroughly practical took up the Berkshire, and in endeavouring to improve the outward appearance and form of the pig, sacrificed many of its best points.

In order to make them mature more early and to render them more uniform in colour, the Neapolitan cross was introduced; these objects were attained, but with a loss of size, length, and lean flesh. Somewhat later our American cousins desired to expend some of their vast and easily acquired wealth in the purchase of some live stock, better, or at least dissimilar to, the ordinary run of domestic animals in the United States. Shorthorns and pigs seemed to appeal most strongly to these wealthy customers. Bates cattle were few and fashionable, whilst Berkshire pigs were totally unlike their native "rail splitters," since the latter were, as their name denotes, long and narrow, with at least one sharp end; the Berkshire had become short, thick, heavy in neck and shoulders, and very short in snout, with hanging jowls. The nearer the type to this fancy form the higher the value placed on the pig by our cousins, who backed up their fancies with the almighty dollar to such an extent that the breeding of the fashionable Berkshire became a most lucrative, if not pleasurable, pursuit. Not content with this vast change of form, an effort was made to determine that the colour should be "black with white points"; *i.e.*, that a white tip to the tail, a white star on the forehead, and white feet, should be the correct colour, and that pigs deficient in the so-called "markings" should not be considered to be qualified to take a prize at our chief shows.

So long as the buyers from the United States continued to visit our chief shows, so long did the breeding of these fashionable Berkshires prove to be profitable, but, as with most other fashions, there came a time when something different to the general run was sought, and the breeders of Berkshires had once more to trust mainly to the utility market. In the meantime pig breeders, acting on the advice of the bacon curers and butchers, had tried other breeds of pigs or crosses, that appeared to furnish the type of meat which had become in more general demand. The increase in the amount of money at each week's end which the housewife had at her command led to the purchase of a larger supply of meat, and also to a desire for meat carrying less fat. This change in demand and the intro-

duction of the system of mild curing of bacon, brought about a complete change in the character of the meat generally in request. The breeders of Berkshires promptly discovered that the handsome rotund and black with white points animals did not quite suit, and they have of late years vastly improved their pigs for practical purposes.

Amongst the more recent applicants for public support is the well-known Large Black pig, which has made many friends owing to its prolificacy and its suitability to the market at which young pigs when weaned from the sow are sold; the youngster makes good use of everything which comes in its way, and increases in size and height so that it appears to be quite as large as it really is when penned at market or when being hawked about in the dealer's cart. Unfortunately for its uniformity the chief breeders of these so-called Large Blacks dwell at two of the extremes of the southern portion of England, *i.e.*, in Essex and Suffolk, and in Devon and Cornwall. The climate varies as well as the class of pork most in demand, and in addition the origin of the pigs in these two districts most probably varied; the Eastern Counties pig was longer in the carcase, and probably carried a greater share of lean meat, whilst the West Country pig was heavier in bone, head, and shoulder, and shorter in ham and hind-quarters, besides carrying more fat when fit for the butcher. Of the two types the latter would perhaps produce the greater weight of meat, but the proportion of head, jowl, and forequarters would be generally greater, whilst the side of the carcase would be shorter and more thickly covered with fat. An endeavour is being made, with a considerable amount of success, to reduce the weight of the forequarters of the Cornish type of pig, to increase the length of side and proportion of lean meat, and to improve the shape of the hindquarters and particularly of the hams. Probably the greatest improvement from the bacon curer's point of view has been effected by crossing the Large Black sow with a Large White boar possessing quality of bone and hair; the outcome of this first cross is asserted by many persons to be superior to pigs of either or any pure breed. During the last three or four decades the Large White pig has been a great favourite both at home and abroad when pigs suitable for bacon curing have been sought. Their opportunity came when the buyers from the States dominated the Berkshire breeders.

One or two breeders of Yorkshires in particular laid themselves out to supply the very large demand for the long-sided, light fore-quartered, and well-developed ham type of Yorkshire. Their efforts met with their due reward as orders poured in from all

countries where the manufacture of bacon was carried on to any great extent. A few years since a certain section, not the most practical section, of the breeders of Yorkshires, became possessed of the idea that one of the principal points to be sought by the judge of Large Whites should be size, on the ground that a Large White pig should be a big one, notwithstanding that this theory was in direct opposition to the wishes of the consumer whose increasing desire was for a small joint, and as many of them as possible. Some few of the judges who also did a little dealing made matters worse by honouring the monster pigs, with the result that length of leg, head and body, and strength of bone, became fashionable to the detriment of the breed. Fortunately the breeders of Large Whites are beginning to realise that the permanent good of the breed is most likely to be acquired by studying the wants of the consuming public.

Probably the Middle White pig has better held its improved position in the pork producing and consuming world than the pig of any other distinct breed; its carcase may be made suitable for the jointer trade, for the pork trade, and for the small bacon trade. In form it more nearly resembles the best type of Berkshire than any other pure breed. The chief points of decadence in some of the Middle Whites may be coarseness in the bone, hair, and flesh. A really good Middle White is prolific, is a fairly quick grower, and a supplier of varying sized joints of fine quality meat produced at a comparatively small cost.

The Lincolnshire Curly Coat is the last type of pig for which a herd book has been established. In the fifties of the last century the common pig of the county of Lincoln was a slow maturing giant which at the age of about two years weighed some six to seven cwt., but by the selection of the pigs of finer quality and possibly also by the introduction of outside blood a certain portion of their coarseness has disappeared. If the principal demand for these pigs was not confined to those portions of the country where the system prevails of supplying some farm hands with a certain amount of bacon, the breeders would probably pay still more attention to quality than at present. Should the breeders endeavour to create a foreign apart from a local demand they might find it profitable to give increased consideration to quality of bone and meat, and to length of carcase. Judicious selection and possibly a little alien blood has greatly changed the hardy and prolific pig of the forests, now termed the Tamworths. The bacon curers appear to consider that even still more attention to length of middle, lightness of shoulder, and form of ham, are necessary to render this breed suitable for crossing with the other pure and local breeds of pigs.



We therefore advise the breeders of pedigree pigs to concentrate their attention on those particular points which would render their favourites suitable for the improvement of the ordinary pig in important and practical points rather than in those on which the mere fancier is prone to place a greater value than is their due.—SANDERS SPENCER in *Live Stock Journal Almanac*.

**Fertilisers and Feeding Stuffs Act.**—From time to time attention is called to the futility of the present fertilisers and feeding stuffs regulations as they affect the sale of feeding stuffs. Ostensibly these regulations are drawn up for the protection of the purchaser, but they are framed in such a way that they afford him the minimum amount of protection, and, in some cases, none at all. Obviously a buyer wants to know two things about a feeding stuff which he is asked to purchase. First, the percentage of valuable feeding material or nutrients present; and, secondly, whether the material is free from actually injurious substances, or of useless substances present in such amount as to cause them to be injurious. The nutrients present in all feeding materials are classified under the names of oil, albuminoids, and carbohydrates. Unless the buyer knows the proportion of these several substances present in the feeding stuffs on the market, he cannot form a correct estimate of their true value, or make a comparison of one material with another. But, having before him a complete statement so far as relates to these ingredients, it is a comparatively simple matter to determine which is the better value of two feeding stuffs at the respective prices at which they are offered. The Fertilisers and Feeding Stuffs Act, however, requires that, with every delivery of a feeding stuff artificially compounded, the seller needs to state only the percentage of oil and albuminoids present, no statement with respect to carbohydrates being required. Thus, as regards nutrients, an incomplete statement of analysis is permitted, to the detriment of the buyer.

The analysis of a feeding stuff is almost as important negatively as positively; that is to say, by proving the absence of material which should not be present as much as by revealing the presence of desirable ingredients. Leaving out of account the question of actually 'poisonous substances, which are fortunately of rare occurrence, the substances which are negatively important are indigestible fibre and sand. Both of these are present in all manufactured feeding stuffs, though in widely varying amounts. Sand should be present in a well-made article in very small amount, not more than  $\frac{1}{2}$  per cent. If present, as sometimes

happens, to the extent of 3 per cent. or more, it is evidence of the use of inferior or badly cleaned material. As regards indigestible fibre, this represents chiefly the husk of the seed or seeds used in the manufacture of the feeding stuff, and naturally it varies in amount according to the nature and relative abundance of such husks, and the extent to which they are removed during manufacture. Of the commoner feeding stuffs in use, undecorticated cotton cake contains the largest amount—that made from Egyptian seed containing about 20 per cent., while Bombay cake contains usually 2 or 3 per cent. more. The digestive apparatus of ruminants is especially well adapted to deal with indigestible fibre, and foods containing amounts up to 20 per cent., or a little over, may safely be fed to them under proper conditions. But if the amount approaches 30 per cent. or more, not only is the purchaser paying for a large percentage of material possessing no feeding value, but the excessive amount present renders it actually dangerous owing to its liability to form accretions in the intestine of the animal, and to produce stoppage.

If the intention of the Fertilisers and Feeding Stuffs Act were to protect the interests of buyers, it should require not only that the percentage of nutrients should be given in full, but that the proportions of indigestible fibre and of sand should also be stated. As regards indigestible fibre, fairly wide limits of error would need to be allowed, since this is an ingredient liable to a good deal of fluctuation. My contention cannot be better illustrated than by reference to an example which has recently come under my notice. A cake which is largely used on the Continent has recently been put on the home market with a guarantee that it contains 10 per cent. of oil and 20 per cent. of albuminoids. The purchaser of a consignment decided to have it analysed, with the result that the material was found to be satisfactory as regards oil and albuminoids. A complete analysis, however, showed that it contained 35 per cent.—a very large percentage—of indigestible fibre, which the analyst reported rendered it, in his opinion, a dangerous substance to use. Here, then, we have a material fulfilling the conditions of guarantee required by law, but containing so large a percentage of indigestible fibre as to render it unsafe as a feeding stuff, while, at the same time, there is no obligation on the part of the seller to make known this extremely important fact. Owing to the high price of all feeding materials, there are being offered at the present time, at a somewhat lower price, brands of undecorticated cake made from seed such as has not hitherto been generally used for the manufacture of cake. It is stated, doubtless quite correctly, that in oil and albuminoids such

cakes will compare quite favourably with those made from the usual well-known sources of supply. But such information is not enough. In cakes of this character the thorough delinting of the seed is all important, and the only safeguard that this has been properly done is a statement as to the amount of indigestible fibre present in the cake. But no such guarantee can be demanded, and the material may or may not be good value.

Leaving the question of guarantee, and looking for a moment at the administrative side of the Act, the most unsatisfactory regulation is that which requires that samples shall be taken within ten days of delivery. Why such a time-limit should have been fixed it is impossible to discover, unless it were the deliberate intention of the framers that it should operate to the prejudice of the purchaser. Assuming that the feeding stuff is unsatisfactory, a fraud is not less a fraud at the end of three weeks or a month than at the end of ten days, while there would be infinitely more chance of its being detected and punished. In the ordinary course of events, the purchaser does not have analyses made immediately on delivery. On the contrary, he begins feeding the material to his stock. It is only after a lapse of a week or so that he can judge how they are doing on it. Finding, as he thinks, that his animals are not thriving as they ought, he decides to communicate with the official sampler for his county. By the time the latter has given the necessary three days' notice to the seller and taken the samples, the ten days' limit has elapsed, and in the event of the material proving to be unsatisfactory, the buyer is placed out of court in making any claim on the seller, or in instituting proceedings against him. Such cases have happened again and again. A more unsatisfactory condition of affairs it would be impossible to conceive. The time during which samples can be taken should be extended to a month or three weeks, at least. The limits of error allowed by the Act are hardly less unsatisfactory. Under these, a delivery of linseed cake, guaranteed to contain 10 per cent. of oil, need contain only  $8\frac{3}{4}$  per cent., and with the lower brands of compound cakes the regulations operate even more adversely to the interest of the buyer. For example, such a cake guaranteed to contain 5 per cent. of oil need contain only 4 per cent., that is, a shortage of 20 per cent. of the amount stated is allowed. There are strong grounds for believing that some manufacturers take advantage to the full of the opportunities for further profits thus afforded them, and operate as near the margin of safety as possible. With modern machinery, and the power of control it affords, I am unable to see that any limits of error are required. If a manufacturer knows that his cake contains 8 per

cent. of oil, he can quite well protect himself by guaranteeing 7 or 7½ per cent.

The vesting of the final decision as to prosecutions in the Board of Agriculture is a matter which has received much adverse criticism, and need not here be dwelt on. As illustrating the farcical lengths to which the veto thus set up may go, I need only refer to the well-known case which formed the subject of questions in Parliament, where a county council were restrained from instituting proceedings against the seller of a material which was admitted to be a mixture of sawdust and treacle.—“MENDIP” in *The Field*.

**Pedigree and Milk.**—Signs are not wanting to indicate that a period of prosperity hitherto enjoyed only by the Scotch and other beef-producing strains has opened for the pure-bred Dairy Shorthorn. Go where one may, interest in the heavy milking Shorthorn is found to be on the up-grade; the crowd at the ringside when cattle of this description are exhibited grows ever greater; and the periodical sales are attended by numbers of enterprising breeders who formerly paid no attention to any but the beef cattle. Then, too, every year that passes adds to the number of herds in which careful records are kept of the milk yields, and prices which compare favourably with those paid for the most fashionable of Scotch pedigrees are willingly given for cattle whose satisfactory performance at the pail is well authenticated.

But it is the cattle which can trace their descent directly to the Shorthorns bred by the brothers Colling (the first improvers of the breed), Thomas Bates of Kirklevington, Sir Charles Knightley, of Fawsley, and one or two others, which cause heads to nod and bids to follow in quick succession in the sale ring. One has only to analyse the remarkable figures obtained at the dispersal of the late Mr. George Taylor's herd at Cranford, to prove the truth of this statement. The cattle offered on that occasion possessed both heavy milk yields and ancient lineage; and in spite of the fact that they were sold literally “in the rough” without any preparation or culling, and at a season when they did not show to advantage, the prices realised caused unfeigned astonishment to breeders who had yet to learn the value of pedigree.

The Cranford herd was almost entirely composed of cattle sprung from the above-mentioned sources, the Bates and Bell-Bates tribes, always famous for their excellent dairy qualities, predominating. The late Mr. Taylor may be regarded as the pioneer of the pure-bred Dairy Shorthorn movement, and as prices at the sale of his famous herd far surpassed any others of the same kind, no better example of the present trend of feeling could well be selected.

There are some who do not hesitate to avow that what they are pleased to term "the craze for pedigree," is being carried to extremes; that history is repeating itself, and that breeders, following the example of those who created the "Bates boom" of half a century ago, are paying these high prices for the paper pedigree rather than for the individual merit of the cattle. But is this the case? Ever since the "golden 'seventies" Shorthorn men have never tired of extolling the qualities of the rival strains by insisting that it is "Booth for the Butcher and Bates for the Pail," proving, if proof were needed, that the descendants of the Kirklevington cattle have always possessed a reputation for their milking qualities. Thomas Bates' great cow, Duchess, gave on grass alone, without other food fourteen quarts of milk twice a day; Robert Colling's celebrated Barmpton Rose, yielded  $26\frac{1}{2}$  quarts at the evening milking, and Bates has left it on record that all the cows got by Second Hubback were notoriously heavy milkers. Moreover, Bates claimed that, during thirty-five years of breeding, he had effected an improvement in Shorthorns, whereby with a third less consumption they gained a third more weight, and that *while their milking qualities were unimpaired*, they yielded a third more butter.

If, then, heredity counts for something—and he would be a rash man who would deny it—it is but reasonable to expect the descendants of these cattle to be endowed with rather more than the average dairy attributes. By the careful selection and use of bulls sprung from deep-milking cows, these attributes have been accentuated until a well-bred Bates cow, without too many crosses of Scotch blood, is practically synonymous with a heavy milker. Moreover, by the judicious infusion of other blood, skilful breeders, like the late Mr. G. Taylor, have prevented that loss of Shorthorn character which was at one time considered to be inevitable. Anyone who was present at the Dairy Show in October, and saw for himself the grand cows full of that character and style which is the birthright of the Shorthorn, would have no fear that the desire for heavy yields is leading to the breeding of a mere milking machine far removed in appearance from the typical Shorthorn, wedge-shaped in body, thin in flank, and bony in structure. Thin-fleshed in comparison with the beef type the pedigree dairy Shorthorn may be, when in full milk, but she retains that marvellous capacity, inherent in the breed, of putting on flesh when dry, and may still claim to be the best dual-purpose animal in the world.

But what, it may be asked, are the prospects to encourage breeders to devote attention to the pedigree milking Shorthorn? First and foremost stands the ever-growing demand for milk, and the cow

sprung from a family renowned for its dairy qualities naturally has the advantage over one whose previous history is unknown ; and if Thomas Bates was correct in his theory, she will produce more milk at less expense than her low-born sister. Then, too, the high prices which have so long prevailed for the essentially beef-producing Shorthorn have led to the breeding of animals possessing abundance of flesh often at the expense of milk, the want of which is already making itself felt in Argentina and other countries which have hitherto devoted their attention only to beef. Enquiries are coming from that quarter of the world for milking Shorthorns of long pedigree ; South Africa and Rhodesia are already good customers to the breeders of dairy Shorthorns, and everything points to a still greater demand as soon as the vast resources of these territories are developed. The splendid cattle which are such a feature of the Highlands of East Africa readily respond to the Shorthorn cross, and dairy-bred Shorthorn bulls will shortly be wanted by the enterprising settlers of Britain's youngest colony.

Meanwhile interest at home is being stimulated by the good work which is being done by the Dairy Shorthorn (Coates's Herd Book) Association, which, by offering prizes in connection with the various agricultural shows, gives breeders the opportunity of showing the good qualities of their cattle. New herds are being established, not only in England but in Ireland also ; the Cranford cattle, whose fame is world-wide, have been scattered far and wide through the land, and the supply of dairy-bred bulls, which at one time was limited, is more nearly approaching to the demand, so that breeders will not find so much difficulty as formerly in their efforts to keep up the character of their herds. Breeders of the pure-bred Dairy Shorthorn need have no anxiety about the future.—“ B ” in *Mark Lane Express Almanac*.

**The Education of the Young Farmer.**—Principal W. G. R. Paterson, of the West of Scotland Agricultural College, lecturing on the above subject recently, said :—I have taken up this subject because I feel it to be an important one, and well deserving of careful consideration. It is a subject regarding which there may be some difference of opinion, and there is certainly room for that ; but there could not be a more opportune time, nor a more fitting place for a free expression of opinion on such a question. If there is a difference of opinion, so much the better—it would be a tame world otherwise. Agriculture is the first and greatest industry—the mother of industries. Manufacturing, mining, and other industries have developed to an enormous extent, yet agriculture remains our

greatest national industry. Think of the different trades linked up with and dependent on agriculture—trades too numerous to mention—and you cannot but be amazed at its vast and far-reaching effect. Because of that, I say the education of the young farmer is a subject well worthy of consideration. If the young farmer can be better fitted for his life work, then the gain becomes “national” as well as “individual.” The State reaps the benefit, but so does the farmer himself. We may be behind some countries in certain respects—in fact we are, and we have to admit it. Nevertheless, taking everything into consideration, this is, and has been, the leading agricultural country of the world since the end of the eighteenth century. We live, however, in an age of progression; competition is keen, and it seems to me that if we are to keep in the van, it is essential we should pay more attention to the education of the young farmer, otherwise we shall no longer lead, but find ourselves out-distanced in the race. To keep in the front, agriculture needs a share of the country’s best sons. She should never have difficulty in getting them. What calling can be more tempting or alluring to a lover of Nature than that of “farmer”? What is more pleasant than to work along with Nature and be constantly brought face to face with her ever recurring miracles? What is better than an outdoor life under Heaven’s blue-vaulted canopy? What vocation makes for the same sturdy spirit of independence?—an independence that has made the country what she is—“beloved at home, revered abroad.” In what line could you expect a healthier or happier life? “To plough and sow, to reap and mow, and be a farmer’s boy.” The profits in farming may not be equal to what might be derived were the same amount of capital invested in certain other ways, but the “almighty dollar” is not everything, and many are the compensations; so much so that agricultural pursuits will always claim a very large number of adherents.

I come now to close quarters with the subject, and will endeavour to put before you my views regarding the education of the “young farmer.” By the term “young farmer” I mean not merely the farmer’s son who desires to follow in his father’s footsteps, but any young man who intends to become a farmer. Apart from “capital,” which is a *sine qua non*, one thing is needful, namely, a knowledge of the science and practice of agriculture. Some people seem to think that “science” and “practice” are two very different things. Are they really different? Are they not rather like two parts which are required to make a whole, either part being incomplete in itself, and dependent on the other? In my own mind I am convinced it is so. You sometimes hear a successful

farmer described as a good "practical" man, none of your "scientific" kind. There are "practical men" and "practical men," but my experience of the so-called "successful practical man" has generally been that he was so practical that he "practised with science," and therein lay his success. With a knowledge of practice alone a man has, after all, only one leg to stand upon. The young man who starts farming at the present day without some knowledge of the science of agriculture is starting very heavily handicapped, and that handicap will not become less as time goes on unless he sets himself to remove it. But the young man with some knowledge of science and no knowledge of practice is quite as severely handicapped, if not more so. He is almost certain to make far bigger mistakes at first, and required to pay very dearly for his experience. Provided such a man has plenty of capital and be made of the right stuff, I believe that he will triumph in the long run, but I would be the last to advocate his adopting such a course. The education of the young farmer should be of such a nature as to give him a knowledge of science and practice. Unless it does this his education is not complete. The young men whose education we are considering really fall into two classes—those brought up on the farm—farmers' sons—and those not brought up on the farm. This latter class is at the present day fairly numerous, and there is every likelihood that it will remain so. Perhaps the fact that ever stiffening examinations require to be passed before entering certain professions, while the farmer is free from competitive examinations is partly responsible for this. But the love of an outdoor life and the fact that farming is a healthy occupation, are also partly responsible. The education of this latter class as farmers will always be more difficult. Though the school education may have been the same for these two classes, the requirements in the way of further education are usually entirely different. Those brought up on the farm start with a considerable advantage over the others, especially as regards practical knowledge. It is entirely different with those not brought up on the farm. The knowledge gained by the former may have been almost unconsciously acquired, but it is there. School holidays are usually spent on the farm, generally in taking part in all the work going on during that happy period. Even when not on holiday, a good deal can be done before and after school hours. The result of this is that by the time the end of the schooling period has been reached, so much familiarity with the different farming operations has been acquired that the young man can turn in and lend a hand in the general work of the farm without more ado. That



is as it should be, and, in my opinion, he should be allowed to work away for a couple of years or longer—preferably longer—in order to get a complete knowledge of farm practice. It is after this stage that the agricultural colleges should come in to play their part. In my opinion it is a great mistake for the farmer's son to go straight from school to college. He ought to spend some time on the farm first. From eighteen to twenty and upwards is quite a good age at which to enter the college. A student entering at that age will derive far more benefit from a course of instruction than one entering at about fifteen, and there is more chance of the veteran farmer listening to advice on manuring and similar subjects from a young man of twenty-five than from a lad of eighteen. But take the other class—those not brought up on the farm. They are too numerous by far to be ignored. How can they obtain the necessary practical knowledge? The only satisfactory way at the present time is by going to a farm and remaining there long enough to become familiar with farming routine. A little practical experience of certain manual operations is infinitely better than elaborate explanations. Mere residence on the farm, however, means nothing. It is not that which gives experience. To get this it is necessary to take part in the farm work. In the words of old Benjamin Franklin :—

“ He that by the plough would thrive,  
Himself must either hold or drive.”

The would-be farmer ought to take part in the various operations, and become familiar with them by actual experience, and, if need be, by paying for that experience. To learn to swim you need to get into the water, unless you take the same view as a certain small boy, who, after being nearly drowned, vowed he would never again touch water till he could swim. To learn to farm you need to get into the work. The farm pupil should be allowed to take much the same place on the farm as the farmer's son; only then can he obtain the kind of knowledge which is so essential—a knowledge of certain operations, of stock, etc., and of the “ business of farming.” That is the kind of knowledge which is so essential, and without which a young man should not enter the agricultural college. There is, however, another way in which the requirements of this particular class could be catered for, and I am not at all sure but what it would be a better way. Understand clearly that I am referring to those who are not farmer's sons, and who have not been brought up on the farm. The practical knowledge so essential before entering an agricultural college might be obtained on a farm in connection with the college, but one run entirely on commercial as distinct from experimental lines, for I do not think an experimental farm is the

place to teach the first principles of farming. There are difficulties in the way of such a course, but they are not insurmountable, and there are certainly great possibilities. The whole aim of such a course should be to give to the farm pupil a training and experience similar to that obtained by a farmer's son on his father's farm. He would then be in a position to derive full benefit from a course in an agricultural college.

Some of you may say I am assuming that the agricultural college is an essential in the education of the young farmer, and that I have no right to make any such assumption. The main function of an agricultural college should be to impart, directly or indirectly, such knowledge of the sciences applicable to agriculture as will enable those who obtain their livelihood from the land to do so to better advantage. The promulgation of theories that will never benefit anyone is not science. So far as agriculture is concerned, the science that does not affect the weight of the purse is no science at all. By "science" as applied to agriculture we mean a full understanding or a knowledge in detail of all that pertains to agriculture. We want to know the reason why. Science explains this. I fail to see how a man can be called practical if he does not know the reason why. To be practical you need to be scientific, and, whether you know it or not, unless you are scientific you cannot be practical. The teaching in an agricultural college, provided it be of the right kind, instead of producing a "pure theorist," a kind of "visionary, impossible being," as some people seem to think it does, will make what was considered a practical man far more practical than ever he was before. It is not "learning" that is wanted, but knowledge. Anyone can learn to repeat a general formula, but it takes knowledge to apply it under practical conditions. Because of that, I say the agricultural college has a part to play in the education of the young farmer. The greater the part it is allowed to play, the better for the farmer. Some of you may think I am asking so much for the young farmer before ever he enters college that there should be no need of his going there at all. My reasons for pressing so strongly for some knowledge of practice are, in the first place, because I feel that such knowledge can be obtained far better on the farm than in the college; and, in the second place, because this preliminary knowledge is likely to make all the difference to the pupil. He obtains a very different grasp of the subject than he otherwise would. Only the student who is familiar with agriculture from actual experience under work-a-day conditions will derive the full benefit from instruction given in the college, and that is the type of man we want to take advantage of

the college courses and who will prove a credit to his college. He becomes familiar with the science and practice of agriculture—with the kind of science that Huxley defined as “trained and organised common-sense,” the kind of science that will affect the pocket. As already said, unless it stands that test it is not science at all. But it does stand the test. Try it for yourselves. Probe it as deeply as you like. For example, take the subject of manures and the manuring of crops. Manuring is a science, and requires careful study. Every crop has its own special manurial requirements. Very few soils should be treated exactly alike. There is a long list of manures from which selection can be made. Without a complete knowledge of the action of these different manures, the peculiarities of crop and soil, the valuation and purchase of manures, it is impossible to buy in the cheapest market or to manure to best advantage. That is the kind of science a knowledge of which quickly affects the weight of the purse, and every young farmer ought to have that knowledge. Some farmers get out of the difficulty by using a compound manure. Such manures are very handy, and save some trouble. Manure merchants, however, are not philanthropists as a rule. They are generally business men, and business men are very apt to keep their eye on the dollars. They do not compound a manure for purely philanthropic reasons. Then what about the law of diminishing returns? The biggest crop is not always the most profitable. There is a certain point in manuring, as in feeding, beyond which it is not wise to go. I have known a ration costing 2s. 6d. per animal per day fed to fattening cattle. It was not diminishing returns, but disappointing returns in such a case.

The college trained farmer is sometimes criticised by his neighbours, especially if he does not produce any bigger crops than they. But does he need to? Is it not the same thing if he cheapens the cost of production or improves the quality of the produce without increasing the outlay. There is sometimes more than appears on the surface, and it is not wise to jump too rapidly to conclusions. Or, take foods and the feeding of live stock—food was once confined to hay and grass; now foods are legion in number, and at present many people are worrying because they cannot get the stock to feed. A knowledge of the composition and proper use of the different feeding stuffs is of very great value to the young farmer. Without this knowledge it is impossible to utilise even home-grown foods to the best advantage. That can only be done by judiciously blending home-grown and purchased concentrated foods. Further, for successful feeding a knowledge of the requirements of the different kinds and classes

of stock is essential—*e.g.*, young growing animals, fattening animals, milk-producing animals. Even when the ration is in every way suitable, the manner in which it is fed may mean all the difference between success and failure. Very different results are often obtained from the same feeding stuffs in the hands of different feeders. There is a great deal of truth in the old German adage, "The eye of the master fattens his cattle." The complete mastery of a subject like this means a great deal to a young farmer. There is much involved, however—*e.g.*, a knowledge of the comparative value of foods (nutritive and manurial), the relation of food to animal requirements, animal nutrition, etc. A full knowledge of this subject cannot be gained at the farm, but it can be at an agricultural college. It certainly affects the purse, and that speedily. We know what milk records have done by way of improvement in milk production. The unprofitable animals have been gradually weeded out, and the milk yield raised considerably. There is a large and equally important field in studying the cost of milk production. I am perfectly sure that there is an enormous difference in the cost of producing milk. I should not be surprised if in some cases it is half as much again as in others, according to the foods used and the methods of feeding. A thorough knowledge of feeding makes a young man very independent.

Or, take the selection and sowing of seeds, grasses, clovers, oats, etc. Expert knowledge is generally equally valuable here. The average farmer laughs if you tell him to sow a certain number of germinating seeds per acre. He is more practical than that: he goes by pounds or bushels. He is not really more practical. In fact, he is not practical at all. He only thinks he is. We go by pounds and bushels also, but when we know what is in a pound or bushel, not before. Is there not a good deal of guess work in the method that some farmers adopt, especially in seeding pastures. Take, again, a knowledge of insect pests, and of certain crop diseases. Science trains a man how to look, what to look for, and how to recognise it when he sees it. Consequently the presence of insect pests and of diseases in crops is detected by the expert long before it would be apparent to one not specially trained, and by getting at the attack in an early stage, damage may be prevented, or at least greatly mitigated. These are a few of the reasons why I consider a scientific training so essential in the education of the young farmer. Let me mention one other subject—namely, book-keeping, or rather farm book-keeping. Farmers as a class are not great book-keepers. The bank-book is often about the only book kept, and systematic farm book-keeping is little practised. Every

young farmer should have a thorough grasp of book-keeping. This enables him to see at a glance what branch of farming (sheep feeding, cattle feeding, dairying, etc.), is proving most profitable. He may think he knows without book-keeping, but he may be very far out. Book-keeping also shows how one year compares with another. The other subjects I have refrained from mentioning (and there are a considerable number) are quite as important as any mentioned. I think, however, enough has been said to prove that scientific knowledge is a very valuable asset to a young farmer.

But farming is a business. Hence a knowledge of markets, of men, in fact a knowledge of every detail of the business of farming, is also required by the young farmer. He must be thoroughly conversant with his business and the details thereof. This is the kind of thing that inspires confidence amongst the workers. He must also be trained to keep a good grip of the reins so as to guide and control affairs, otherwise there is likely to be hopeless confusion. Two farmers were driving home from market at a good pace one afternoon. After one or two narrow escapes the one said to the other—"Canny, Tam, you're surely taking thae corners very close—ye'll tumble us out yet." "Tumble ye out! I'm no driving. I thought you were driving." The young farmer must not follow this precedent, but keep a good grip of the reins both on the farm and on the road. Apart altogether from politics, the average farmer is very conservative. He does not readily change his methods. He is apt to look somewhat askance at the young scientific farmer. All the same, if a young man is not a better farmer after going through a systematic course of instruction, it denotes one of two possibilities—either there is something radically wrong with the instruction, or there is something wrong with the student. If the former, the sooner it is put right the better. The college should be looked on as the place in which the practical teaching of the farm is supplemented with a knowledge of the sciences bearing on agriculture. It is not a place for the teaching of operations such as ploughing—that can be better done elsewhere. It is the place for instruction that cannot be so well and so fully obtained on the farm. Some farmers are born, not made, and there are numerous successful farmers who were never near an agricultural college. But in all probability these men would have been even more successful had they had a scientific training. Success in farming depends, amongst other things, a great deal on attention to little details. It is the little things that count.

"Little drops of water, little grains of sand,  
Make the mighty ocean, and the solid land."

The young man should be trained to attend to small details as well as matters of more importance.

The would-be farmer, in order to derive full benefit from the instruction given in an agricultural college, requires to spend three short winter sessions of five months each in the college—fifteen months in all—and that at times when little is going on at the farm. That does not mean much, and yet I say it may mean the greatest asset the young farmer can have. If full advantage is taken of it, and opportunities are turned to good account, that fifteen months' training will be the best paying investment ever made by the young farmer.—From *The Scottish Farmer*.

**The Motor Lorry as an Aid to Agricultural Development.**—At a time when the advantages of the motor as applied to agricultural machinery are being emphasised in every quarter, it may be of interest to dwell on the uses of the motor-lorry as a feature of peasant farming, particularly in regard to the conditions prevailing in Ireland. Of the great boon which this form of transport is destined to prove to small holders it would be impossible to speak too enthusiastically. One can imagine that under a wiser State, where agriculture would receive its proper share of attention, the advent of the motor and its extraordinary possibilities as an instrument for the organisation of agriculture would long since have been recognised and applied. As things are, however, it has to push its way unaided through the chaos of interests and blind efforts which still characterise the oldest and, withal, the chief industry. Two leading railway companies in England have acknowledged the use of the motor as an agency for increasing their traffic and have most successful systems at work. Ireland is still without this aid. Yet in few countries would a well-organised motor service be of greater benefit to the cause of agricultural advancement. Whether for good or ill, Ireland is committed to the policy of small holdings, requiring for its success the most elaborate economy of time and effort, quick marketing, and a much more intensive culture than ordinarily prevails in these islands. At present the continual journeys to the village or the longer distances to railway stations and co-operative stores take up almost as many hours in the week as the actual labour on the land. Nor is this the only drawback. Obviously the incentive to market small parcels is nothing like so strong as it would be under a system in which the consignments were collected from house to house and despatched in bulk. By this means freights could be considerably reduced, and the full value of such commodities as eggs, poultry, vegetables, etc., would be more generally realised.

If peasant farming is to be successful the minor products must be as carefully developed as the corn crop. The experience of Norway, Belgium, France, etc., strongly confirms this view. There is little wisdom, however, in producing eggs and poultry if the end is to be merely a glut in the local market.

Leaders of the forward agricultural movement in Ireland preach incessantly of the opportunity which exists for small farmers to cater for the demands of the English market, of which they can become the main source of supply if they will bring their system to such perfection as the Danish and Flemish farmers have done, for the greater proximity of Ireland to most of the large manufacturing and mining centres is strongly in her favour. All organisation of late years has been directed, in fact, to that end, and very considerable progress has been made towards meeting the competition of the countries mentioned. A careful study of marketing conditions shows, however, that in many articles of food and in cut flowers the well-to-do classes in Great Britain are extremely careful to have each day's requirements as fresh as possible, hence for several articles daily despatches from Ireland will be required. For this end a motor-collecting service is indispensable. It would systematise each day's work, take the produce away as it is ripe, and incidentally give an impetus to production. Many of the large estates are several miles from a railway station, and encouragement towards farming of the kind described above is obviously very slight. It may be held that the advance of co-operation will considerably mitigate the drawbacks at present attached to the sale of small consignments, but only in rare cases can the co-operative stores be more central than the railway stations. Needless to say, we are not concerned as to whether a co-operative society or a railway company or a private firm is responsible for the motor service. But it may be assumed that the old system of marketing through a middleman exists no more.

So far we have emphasised the importance of the motor from the point of view of getting the produce to the market. But what about the farmer's requirements, both of a personal kind and in connection with his business? Few who have any knowledge of rural Ireland can have failed to notice the drudgery and the enormous loss of time associated with "going to the town." It is as frequently as not a long journey by a bleak road; in rainy weather it is a danger to health, and many cases of consumption and rheumatism, both too prevalent, can be traced to this source. Unfortunately, it is the rainy day which has most generally to be chosen; to make the journey on a fine day would often mean the dislocation of urgent work on the

land and an encroachment on the time of both men and horses. Those who in towns are accustomed to give their orders and have the articles delivered at their door the same day will find it difficult to understand why country merchants should not similarly study the convenience of their customers, but the fact remains they do not, and it is doubtful if they could be induced to do so. Nevertheless, the present practice cannot continue, and the advent of the motor-van, conveying household requirements, and of the motor-lorry, conveying food stuffs, articles of machinery, etc., seems only a matter of time. Even Irish country roads have got accustomed to motor bread vans and some other forms of the same power, so that its extension may be quicker than one would expect.

Irish railway companies are so intensely conservative in policy that only when a development can be no longer delayed do they consider the moment ripe to act. But it is certain that during the past few years they have been considering the matter. It may be that they are waiting for a further improvement in the roads. Bad roads, it will be remembered, were responsible for the failure of the scheme which the Chief Secretary announced, during the progress of the Land Bill in 1903. But that reason could not now be urged, and all those interested in the progress of agricultural economy as well as in the growth of rural civilisation will wish to see the experiment launched at an early date:—"J.M." in *Farm and Home*.

**Systems of Stock Feeding.**—During the brief season of fat stock shows the question of feeding animals profitably and economically engages special attention. It may indeed be said to be of absorbing interest to the thousands of breeders, feeders and farmers who attend these exhibitions. The details of feeding are discussed all the year round from their practical and scientific aspects, great advances have been made, and the whole subject of the composition, preparation and use of various foods is now much better understood than when the principles of feeding were less studied.

Much light has been thrown upon systems of profitable meat production by the work of the fat stock shows.

Those who first promoted these demonstrations of feeding must have in some degree foreseen the vast importance which stock breeding was destined to assume not only in this country, but throughout the world. But they could hardly have realised that the demand for meat would so enormously increase, or that in an old and thickly-populated country like ours the production of corn would to a large extent cease to be by itself profitable when the article had to compete with that grown on the cheap land and



with the cheap labour of the vast regions more favoured by climatic influences. When this fact was proved beyond dispute the commanding position of the live stock industry became apparent, and the efforts of the various institutions which had been established to help to elucidate questions connected with breeding and feeding became of increasing importance. The wisdom of not relying too much upon one class of agricultural produce was made apparent, and, ever since, both the winter and the summer shows have been potent influences in advancing the interests of the stock owner and in improving the breeds upon which his success depends.

No doubt one of the outstanding lessons which the fat stock shows have taught is the great advantage of early maturity. The ascertainment and publication of the live weights of the competing animals proved conclusively that under modern conditions of breeding and feeding there was in the majority of cases nothing to be gained by prolonging the feeding process. Moreover, it was evident that the taste of the consuming public was changing and that there was a largely increasing demand for younger animals of moderate size, furnishing tender and comparatively small-sized joints. The fat stock shows have not only improved their work by becoming more practically useful, but they have also placed prominently before farmers the breeds that are most likely to fatten economically and rapidly.

That these selected specimens of the breeder's and feeder's art are brought out in a condition somewhat in excess of ordinary requirements is admitted, though enough testimony has been published from year to year to make it evident that most of them are suitable for the special trade of the season. It is very desirable that this should be so, because exhibitors rely to a considerable extent on the sale of their animals and consequently the utility view must not be overlooked.

It was a very useful innovation at the Smithfield Club Show when the carcass competition was introduced. Some were rather adverse to this feature because they feared the butchers would restrict their purchases to that section and that the object lesson would be too severe. There has been little to complain of in either respect. The carcass classes have certainly been, very educational and have tended to acquaint breeders and feeders with the description of stock that meat traders find most suitable for their requirements, while purchasers still find what they appreciate in the other departments. Exhibitors, while not overlooking the preferences of the butchers, continue to bring out animals that demonstrate the capabilities of various breeds for rapid and progressive fattening.

While agriculturists here cannot generally compete with cheap corn from abroad, they have a better chance of holding their own in the production of superior meat. The competition in that department is just as keen as in the other, but the rearing and feeding of stock entail substantial costs everywhere, and at home there is the advantage, acknowledged on all hands, of the superiority of our breeds of stock, and also the better condition in which the meat can be marketed, despite the improvements in refrigeration. Early maturity, which has been so greatly promoted by the fat stock shows, results in economical production, but it is also necessary to study the details of feeding so that the expense may be still further reduced.

Another point which must, of course, never be overlooked, is that there are many systems of stock-feeding throughout the country, these different methods being largely determined by the character of the land and the available stock food. The shows mainly put forward the results of rapid feeding, so that the ordinary farmer may see the class of stock that would be most likely to enable him to finish his animals more quickly, and to greater profit. Therefore the age limit has been gradually reduced in all departments, and there are those who consider that the time has come when this reduction might proceed even further. It is not often, under these circumstances, that immensely heavy animals are seen, but at some of the shows there are butchers' classes and classes for extra stock which give an opportunity for the appearance of the older grazing oxen which are still kept in parts of the country—perhaps to a larger extent than is usually realised. At Norwich there was an ox four years old whose live weight was 24 cwt. 3 qr. 27 lb., and even this was exceeded at Birmingham where an Irish-bred Shorthorn four years old was shown, the live weight being as much as 26 cwt. 2 qr. 11 lb. Other two animals in the same class exceeded a ton in weight. It may be mentioned that at Birmingham these very heavy animals were exhibited in a class for extra stock which had no limit as to age or breed, and that what used to be called the butchers' class (the judges for which were local butchers) does not now exist. The cattle in the class were adjudicated upon by the other judges, who were doubtless impressed by the remarkable weights attained. Still, these were noteworthy examples of prolonged feeding, a system still carried out on grazing land. In former times one of the attractions of the shows consisted in animals of enormous size and weight. Now the lower age limit turns the aims of feeders in another direction. But even if the type of animal that will be ripe at three or even under two years old is encouraged

these will be equally suitable for the attainment of the immense weights in cases where graduated feeding is the system adopted as most suitable to local conditions.

There seems to be every indication that the breeding and feeding of stock will continue to be the sheet-anchor of British agriculture. The increase of the population and the higher scale of living that is being so widely adopted will call for increased production, and the diversion to other channels of some of the surpluses that have hitherto had only our own markets open to them, should increase the demand. It is, therefore, desirable that the fat stock shows should receive every support. It is also imperatively necessary that the most drastic measures should be adopted to secure and maintain a clean bill of health for the stock of the country.—In *Live Stock Journal*.

**Rural Schools and Agricultural Education.**—In the education of the present lies the only hope for real progress in agriculture in the future. In order to make myself clear, let me state a few facts. We import food stuffs to the value of about £178,000,000 sterling per annum. Denmark alone sends us £25,000,000 worth. A very large proportion of this we could produce ourselves, to the very great advantage of the producers and of the nation at large. There is no doubt that it can be done, but it can only be done by improvements in our methods of cultivation, by organisation of our existing sources of supply and distribution, and by co-operation among the workers. All this means not only increased knowledge on the part of our country population, but a more enlightened attitude towards and appreciation of the value of education. To instil either knowledge or the thirst for it into the present generation of this country is a difficult, if not hopeless, task. In the efforts which are being made by means of technical classes, evening schools, and the like, much good work is being done. But there is not among us that consuming thirst for knowledge, which animates, for example, the Danish peasant, one of whom told a friend of mine that for fifteen years he had been saving up to attend a winter agricultural school. But you can teach the child, mould the mind of a child, and so dispose him or her to appreciate the benefits of education in its larger sense.

What I advocate is greater sympathy with country conditions and country needs in the method of all this teaching. We agriculturists are wont to complain, and with reason, that the education now given is such as to alienate the country children from country pursuits, and head them off, if not actually drive them, to the towns.

This hits us doubly hard, for not only do we lose their services, but we actually pay for that of which the towns get the benefit. Of course some will say that this migration is a natural result of the law of supply and demand. Perhaps so, and no one would deny the sharp lad his chance, but as it is now universally agreed that we need more people on the land, our system ought not, nay must not, be such as to inculcate "a dislike of manual work, and a taste for clerical and for intermittent work," for the vast majority of those so educated must maintain themselves by manual labour. If the children's minds are opened to the greater possibilities of country life, they will not desire to take part in the rural exodus, but will prefer to remain where they are so much needed.

I would suggest the introduction of more rural subjects into the curriculum of rural schools. It can be done, it is done; for in Lincolnshire, the Lindsey County Council as an experiment, put in operation in twenty-five schools of different types a scheme to determine the possibility or otherwise of devoting three afternoons a week to manual and practical work without unduly interfering with the efficiency of the other work, and without employing peripatetic teachers. The teachers of the twenty-five selected schools were consulted, and they all agreed to undertake the experiment, for which they were invited to draw up their own syllabuses.

The subjects taught comprise plasticine and clay modelling (which has been used in connection with lessons in Nature study, geography, object lessons, etc.), paper and cardboard modelling, what is known as light woodwork, which leads up to rural carpentry, and is linked up with gardening, "home-making," or practical domestic work, raffia work, gardening, ordinary wood-work, cookery and laundry work, needlework, bee-keeping, practical Nature study work, and finally practical arithmetic and mensuration.

And what are the results? On the first year's work the Board of Education report says:—"The new work has aroused the children's interest; the teachers hold the opinion that the manual work has had a beneficial effect on the general work of the school. The children who were backward in the ordinary subjects have been encouraged and brightened by the discovery that they can quite hold their own in exercises that require manipulative skill." And finally, "it would seem that this Lindsey experiment is well worth continuing and extending."

One of the teacher's opinions is that the scheme is having a good result on school life and school work:—

- (1) In brightening the aspect of study;
- (2) In cultivating earnestness;

- (3) In bringing the school life of the child more into touch with home life ;
- (4) In widening the child's field of mental activities and improving general intelligence ;
- (5) In supplying fresh channels of sympathy between child and teacher.

As to the cost. The amount for the twenty-five schools was £164—an average of about £6 10s. 0d. each.

Three other instances may be quite briefly noticed. At Winterslow, a village about eight miles from Salisbury, the schoolmaster (Mr. Witt) has introduced matters of rural interest into his ordinary school routine, evidently with great success. Thus the boys' drawings were of different breeds of poultry, and their dictation and other English lessons were about the common crops and stock of the country side. Out of doors there were neatly kept garden plots, on which the bigger boys grew their own vegetables, fruit trees which they learnt to prune and graft, and beehives whose inhabitants they were taught to handle.

If we agree as to the desirability and possibility of introducing more instruction of an agricultural nature into our rural schools, we must consider the question of the provision of properly trained teachers. In the first place we have to recognise the fact that teachers are now trained on the literary system. A chief part of this training comprises three or four years in a secondary school. But a secondary school is usually of a literary type, and as is the factory so is the manufactured article. This in my opinion is a set-back from the old days when a teacher had first to be a pupil teacher in an elementary school, where, if he or she meant to go into a rural school, rural knowledge could easily be acquired. Now, after the secondary school, a would-be teacher either goes as an uncertificated teacher to a school, or goes on to the training college. How then can a teacher get a knowledge of, or interest in rural subjects ?

In the second place we must recognise that if we want efficient teaching (and we certainly do), we must be prepared to pay for it. The rural schools are usually small and because the salaries are not big enough to attract men, are often under a mistress. These are not always qualified to teach gardening and wood-work

Finally, we want to raise the whole national conception of the status and value of the teacher and his profession. He ought to be a well-bred, cultured, and enlightened member of the community, and by reason of his close association with the childhood of the nation, we cannot too highly esteem his power for good.

As one who is deeply solicitous for his country's welfare, I plead for the recognition of better and more fitting education in our rural schools as the means to a great end. This may be accomplished by making better use in the present of the means at our command, and in the future by training the teachers more thoroughly for the work they have to do. When Sir Horace Plunkett started his movement for the reorganisation of agriculture in Ireland, the first thing he did was to institute a vast and comprehensive scheme for training the teachers who were an essential part of it.

Let us frankly recognise the value of the teacher and of his profession, and let us pay a price which will make it worth the while of intelligent and able men to devote themselves to the restoration of rural England and the maintenance of the heritage of which as Englishmen we are justly proud.—From a Lecture by A. ALLSEBROOK.

**Duck Breeding.**—Duck breeders in 1912 enjoyed a very good season, judging by the prices ducks realised on the London market. Not only was the spring season good, but, as summer—or what passed for it—came, the usual slump in prices did not follow; right through August Aylesburies were making 4s. each, nor had the price fallen when October arrived. In short, the market reported a scarcity of ducks, in sharp contrast to reports of recent years. It is quite likely that not a few farmers who used to breed for the market had given it up, owing to the wretched prices made, but the decreased output has had its inevitable effect and a revival has come. But those breeders who wish to profit by it should be careful to send up the type of duck the market wants, for thus, and thus only, are ducks profitable to breed.

It is worth noting, though it is only a minor point, that there is practically no competition between frozen and fresh-killed ducks. Ducks do not stand cold storage as well as fowls—there is no comparison between the two; frozen ducks are not a popular “line” for the salesman to handle.

The market does not want lean ducks. If the farmer is unable to fatten and market them quite young, he will find no profit. To this rule there is one exception. At Christmas time there is a demand for big fat ducks, and many breeders reserve their last hatched birds for then, letting them range all the autumn and giving them two or three weeks' generous feeding just before killing. But ducks are big eaters, and, as a rule, if a duck has to be kept four or five months before being killed, it has eaten up all its profit. Having regard to the poor prices made of recent years, it certainly did.

The age to market a duck is 8 to 11 weeks old, before they shed their pinion feathers ; once they do that, they go back in condition, and must be kept for several weeks longer. But it is no good selling a duck that does not weigh at least four pounds, and if more the better ; it is therefore necessary for the breeder to force them to attain that weight within the period named. This is done partly by selecting the right breed in the first place, and partly by feeding and management. When I say "force" them, I do not mean artificial feeding. Ducks properly managed fatten themselves, in contradistinction to fowls, for nearly all poultry ranking as first class on the London market is artificially fed—that is, machine crammed—before killing.

The best ducks on the London market are invariably Aylesburies. But this does not mean exhibition Aylesburies, but "market" Aylesburies. We cannot improve on the Aylesbury, but in-breeding for exhibition purposes has spoiled its hardihood and laying powers. Hence the cross with the Pekin, which exists even among exhibition Aylesburies, but which in market Aylesburies is far more pronounced. It is roughly three-quarters Aylesbury and one-quarter Pekin. A Rouen cross is little used ; it gives size and hardihood, but there is a certain prejudice against coloured ducks, and, what is of more importance, the ducklings are slower to reach maturity. (For the Christmas duck market an Aylesbury-Rouen cross is excellent.) Nothing can beat the Aylesbury for quick growth among table ducks. Incidentally, it may be mentioned that the Indian Runner and kindred breeds are not table ducks, and should not be crossed with the Aylesbury. The result is unsatisfactory. The market wants size, and the prices given for small ducks are very unprofitable.

Very few Rouens and Pekins are sent to market. The first remains the favourite duck in France. The birds are killed by suffocation, and cooked with all the blood in the carcase. The flesh is unpleasantly dark in consequence, but is esteemed a great delicacy. This only shows the difference between English and French taste, for the Aylesbury is very white or rather pale fleshed. The Pekin is yellow fleshed, and will on occasions grow as fast as the Aylesbury, but for general market purposes we cannot improve on the bird described above—a three-quarter Aylesbury and one-quarter Pekin. The stock should be of good size ; indeed, up to exhibition size, but not exhibition weight, for show birds are overfed.

One advantage of crossing the Aylesbury with the Pekin is the improved laying powers of the progeny. Aylesburies are usually poor layers ; it is very important that our stock ducks should be

good layers. A pen of eight, six ducks and two drakes, is large enough for the ordinary pens. If more are kept they should be separated; passing a farm one often sees a dozen or so stock ducks disporting themselves in the pond. A well-selected pen of eight birds would probably produce more ducklings in the year. Market ducks do not pay to keep, if their eggs are sold for table; the eggs should be converted into ducklings.

As a rule, ducks will produce all their eggs between January and June, but the earlier they lay the better. As to eggs laid after June, their value as embryo ducklings is doubtful. There is risk of infertility; prices in the autumn are generally poor, and the best way to make the ducklings, if hatched, profitable is to keep them for Christmas. The Aylesbury duckers used to make it a rule to set no eggs after June, preferring to give the ground a rest—to say nothing of themselves; but, of course, the eggs are always saleable for eating purposes.

Supposing a start is made with the number recommended, the buyer should make sure they are early hatched ducklings, that is in March or April, and that they have been reared for stock and not fed for table in a confined space while growing. If those starting duck keeping paid more heed to the quality of their stock birds, there would be a better class of duck sent to the London market and fewer complaints of poor prices. Like produces like, and only if we have large, healthy unrelated stock, shall we produce the right kind of duckling.

Ducks should always have a separate sleeping house and not herd with fowls. It is important to house them properly. A shed will serve excellently for them, or the owner can buy a duck-house ready-made from one of the poultry appliance firms. The roof must be weather-proof and the floor dry; damp in their sleeping house is bad for ducks; the best flooring material is peat moss. It is very necessary that the floor be well littered, for some ducks drop their eggs very casually, not infrequently while swimming; for which reason they should not be allowed to frequent the pond until 9 or 10 o'clock. As a rule, they lay before 6. A small pen attached to the sleeping-house is required to confine them when necessary.

December eggs are valuable, and it is to be hoped that those who own ducks have already started incubation by Christmas. But, as said above, ducks are somewhat uncertain layers, indeed cases of pens that never lay before March are too common. In feeding for egg production, we must be careful not to overfeed. When ducks moult they get thin and their appetites are poor; hence they are in bad condition when the moult is over, and should be gradually



fed into laying condition. But sometimes the extra food all goes to fat. If the weather be cold and frosty, give them their food hot both morning and evening. For breakfast give meat meal dissolved in boiling water, mixed with sharps and barley meal or ground oats, and in the evening wheat or maize on which boiling water has been poured; the grain should be emptied into a trough. If there is a hard frost, let them out and break the ice in the pond, so that they can have a swim; but keep them shut in most of the day. This all means trouble, but eggs are worth taking pains to secure. If we are having the usual end-of-the-year weather, damp and muggy, let them have the hot breakfast mentioned above and the grain in the afternoon given in the ordinary way. Be sure their house is weather-proof.—C. D. LESLIE in *Live Stock Journal Almanac*.

**Earnings of Agricultural Labourers.**—Most inaccurate statements are constantly being made about the conditions of agricultural labour and wages, and the public is horrified to hear that in the 20th century such slavery exists at its very door. These exaggerations gain currency by repetition and are really believed. In studying the question it must be remembered that wages and earnings are quite distinct, and that the real wages are what the money payments will exchange for.

In the report on the agricultural labourer by Mr. W. Little,\* the Senior Assistant Commissioner, this point is clearly brought out:—“The term wages expresses the rate of pay, and that of earnings is used to cover all the receipts of a labourer in money or allowances of any description, subject to necessary deductions for lost time.” The earnings of a labourer are always in excess of his nominal wage. To draw the picture as black as possible, the public is given the nominal wage, and not a word is said of earnings. Even wages are not paid on the same system in all parts of the country. For instance, in the North of England it is the custom to hire labour at a fixed wage for the year, whereas in the East of England the labourer receives so much a week, and receives a lump sum for the harvest, besides other extras. In this case the nominal weekly wage in the north will be greater than it is in the east; there will not be the same difference in the earnings as the result of a year's work.

In the Report on Labour the average *wages* in 1892 of an ordinary labourer in England are given as 13s. 5d., and the average *earnings* as 15s. 11d. It is further stated that “in many districts where

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\* There was a Royal Commission on Labour in 1894, and one upon Agriculture in 1897.

piecework is common there is little doubt that a first-class labourer can earn considerably more than the estimated sums." Of course horse-keepers, cowmen, etc., earn a considerably higher wage. Where wages are low the earnings are, in proportion to the wage, very much higher, the excess of earnings varying from 11·4 per cent. where wages are highest, to 33·4 per cent. where they are lowest. "The rate of current weekly wages does not therefore represent the actual receipts within the reach of the labourer, nor does it supply the basis for the comparison of the position of the agricultural labourer in different parts of the country or at different periods of time." The statement therefore that the agricultural labourer is in receipt of 12s. to 13s. a week is quite inaccurate.

There was a considerable drop in wages in the year 1894, the most ruinous year for agriculture within the memory of man; but it was only a temporary reduction, and with better times wages returned to their old level. Not only have they returned to the former level, but they have gone beyond it, the latest official return of earnings being 17s. 6d. What is of most importance to the labourer, however, is his real wage—*i.e.*, what his wage will exchange for in the necessaries of life; and undoubtedly in the last few years there has been a great rise in the price of commodities. Meat, bread, sugar, cheese are all more expensive, and the same wage will not buy for him and his family so much of these as it would. It is notorious that the labourer pays more dearly for what he requires than the rich man. Coal is an instance in point: the labourer as a rule buys what he requires a hundredweight at a time, and thus pays about 5s. a ton more than the man who buys by the truck. Those who are fortunate enough to be near a co-operative store save a part of this loss, but many are not; and it is the same with other commodities. There would be an enormous saving if there were more stores scattered about the country for the use of the labouring population. It is to the interest of the agriculturist, be he landowner or farmer, to do everything he can to increase the real wages of his labourers. There has been far too little attempted in this direction. In proportion as the cost of living can be reduced so wages are really raised. Undoubtedly there would be considerable difficulty in carrying out any scheme of the kind, and suspicions have to be overcome; but it is not impossible, and that way lies the real bettering of the position of the agricultural labourer. Each village or group of villages should have its store, run solely for the advantage of the village community. Here all commodities could be bought at cost price and a small commission to cover expenses. Representatives of the labourers should be on the committee of manage-

ment. In this way an interest would be aroused in the village which has long been known in the towns. Coal, butter, cheese, bacon, tea, coffee, tobacco, could all be bought much cheaper than at present. In some cases it might be found possible to establish village bakeries and thus reduce the cost of the loaf. Milk should be sold to the labourers at cost price. This would be a great boon to the people and no loss to the farmer, who sends his milk away to the big towns and gets a poor return. If he could get the wholesale price at his door, and in addition improve the conditions of those who work for him, he would secure a double profit. The care of the labourer is not only philanthropic, it is good business. Low wages do not mean cheap labour—very much the reverse. The ill-clothed, ill-nourished man who can scarcely drag his limbs to the field cannot do a real day's work. That fortunately, is not the state of the labouring population at the present time, though at one time it was. These are comparatively enlightened days; we recognise that by improving the condition of the labourer his power for work is increased.

The important thing therefore is to increase by all means possible the real wages of the labourer by reducing his cost of living. This will be of far more use to him than the fixing of a minimum nominal wage.

Suppose a limit be fixed by law below which wages shall not fall, how will it benefit the labourer? Let us suppose that the limit is fixed at 15s. a week, and is applied to the whole country. It is obvious that those parts of England where the nominal wage is 16s. a week would not be affected. In these parts, however, it must be noted that the earnings are only 11·4 per cent. above wages. In those counties where the nominal wage came below the 15s. limit and the earnings are in some cases as much as 33 per cent. in excess of wages, the result would be that the nominal wage would be raised but the extras would be reduced, and the labourer would remain, so far as earnings go, very much as he is. The State can say to the employer, "You shall not pay a man less than a certain amount," but it cannot say that a man shall be employed; and if wages are compulsorily raised and all incentives to work, such as extras and piecework, are done away with, the employer will be compelled to study very carefully whom he does employ. Many a man will find that he is no longer required. That is one very real danger. Another danger is that, if the cost of production is raised without a corresponding rise in the price of agricultural products, a new system of cultivation may be introduced which will require less labour. If wages are raised above what the industry will naturally bear, there

must be some accommodation ; and the result will be the same as a reduction in the value of the output. At any rate, the margin of arable cultivation will shrink. The loss to labour in wages, if this should be the result, will be understood when it is realised that whereas arable land yields 30s. per acre in wages, pasture yields only 5s. per acre.—A Correspondent in *The Times*.

**Maintaining Dairy Qualities.**—The subject of the production and disposal of milk is now so important that from one aspect or another it is continually engaging public attention. Many of the questions that arise are open to much debate, and it would be an advantage if some of these were definitely settled, so that dairy farmers might know exactly where they stand. They are always being threatened with some new and drastic regulations for the control of their business, and the result of these menaces is to keep them in a state of doubt and uncertainty which can be beneficial to no one. Those who talk so lightly of legislative interference with a great business should not overlook the fact that there is no compulsion on the part of farmers to supply the community with milk, any more than there is for them to produce other articles of consumption, and, if irksome restrictions are imposed, it is open to them to embark on some other branch of work.

What has happened is this : when corn growing ceased to be profitable, and much land had consequently to be laid down to grass, farmers found that they had an alternative in the sale of milk, the demand for which was steadily growing, and the supply of which could only come from home. It was also found that butter which possessed the much-desiderated quality of " uniformity " could be manufactured on the Continent and delivered in the markets of the large towns of England at a cheaper rate than that at which the home-made article could be prepared for sale, and so many who had formerly supplied butter decided that it would suit them better to use the cows for the production of milk. They would thus have the advantage of the large quantity of cheap imported grain that was available for feeding. No doubt a number of the buildings were not ideally suitable for the business, but few landlords were prepared to put up an indefinite array of model cow-houses, so that the best had to be made of the structures which were already available. The results have been decidedly better than might have been expected under the circumstances. It cannot be doubted that where milk suffers most contamination is not on the farm, but in the hands of small retailers, and still more so in the houses of townspeople, who will give no attention to its careful keeping

and neglect the cleanliness necessary in handling an article so susceptible as milk.

But the aspect of the question that chiefly concerns live stock owners is the quantity and quality of the milk produced on the farm. The British farmer enjoys his only monopoly in regard to this product. In nearly every other branch he has to face severe competition from abroad, but so far the supply of fresh milk can only be secured from British herds. Generally, too, the quantity seems about sufficient for the demand so that prices remain almost stationary, though in a season of scarcity of fodder like the past-autumn it was necessary to slightly raise the price, which elicited an extraordinary display of opposition on the part of the consuming public. The greater the number of dairy farmers in this country who find it more profitable to sell the milk than to make it into butter the larger will be the quantity of milk available for sale. This seems to indicate that, unless the public demand increases (it ought to do so enormously if the amount of milk necessary for robust health were generally consumed), English farmers should, under ordinary circumstances, be able to furnish all the milk required.

At the same time, it is most desirable from every point of view that the milk-producing capacity of cows should be carefully studied and improved. What has been done in this direction by Shorthorn breeders is well known, and the results have been most satisfactory. The breed has always had a high reputation for an unequalled combination of the properties of beef and milk production. For a time, under the influence of the foreign demand for beef cattle, the milking qualities were neglected, but this was only temporary, and a number of skilful breeders have made milk the speciality of their herds. In some parts of the country the deep-milking properties were never overlooked, and notably has this been the case in Gloucestershire. The result of this uninterrupted attention to a definite object has been seen in the remarkably successful sales of several herds, which afford fresh proof of the importance of studying the dairy qualities when building up and maintaining a herd.

The advice usually given as regards improvement of milking properties is that breeders and farmers generally ought to keep a record of production, and there is no doubt that this is an absolute necessity. It is satisfactory to find that several organisations are moving in this direction. For example, the Council of the British Dairy Farmers' Association have forwarded to the Board of Agriculture their final scheme for the keeping of milk records, accompanied by the following resolution:—"That the Council, having

approved of the scheme, desire to obtain the opinion of the Board of Agriculture as to whether it meets with their approval; and, if so, whether the Board are prepared to ask the Development Commissioners to make a grant in aid, as the Council are of opinion that, unless a large share of the cost be met by the Commissioners, the scheme will fail to be taken up." In the event of this scheme meeting with the approval of the Board, and the necessary assistance being forthcoming for the purpose of the scheme, the Council have empowered the Milk Records Committee to meet and act as they consider fit for the benefit of the dairy farmers of the country in making the scheme known.

It is beyond dispute that, by selection and management, stock-owners can do much towards raising the milk production of their herds, both as regards quantity and quality. The retention of the best heifers to add to the dairy stock and the knowledge of the characteristics of their ancestors give the breeder power to improve the dairy qualities, though it is to be feared that less attention is paid to these points by ordinary farmers than is desirable. It is necessary that sires should be selected with great care. In many cases owners of milk-selling herds are indifferent as to this important matter, chiefly because they have no intention of rearing the calves; but a little care would be well repaid. On some of the more obscure points regarding the improvement of dairy properties, Professor James Wilson made some important remarks at a recent meeting of the Irish Shorthorn Breeders' Association. His observations were specially directed to the improvement of the quality of the milk; and there is certainly a useful field for investigation concerning the influence of the sire in this respect. The subject is one on which experiment and research are calculated to throw considerable light, though its practical aspects are well known to most experienced breeders.

It is certainly a very encouraging circumstance that such widespread interest should be taken in dairying matters, and it is specially gratifying to those who have devoted so much time to the improvement of the milking qualities of their herds that their efforts now receive substantial evidences of public appreciation.—*In Live Stock Journal*.

**Use of Sawdust in Stables.**—Not infrequently sawdust is made use of in stables as bedding material, and it undoubtedly answers very well for this purpose. It is true, of course, that this product of the sawmills is not by any means the equal of straw, which is the best litter for use in the stable, but sawdust, despite its general

inferiority to straw as litter, nevertheless proves very useful. The outstanding feature of sawdust, in so far as regards its suitability for littering-down purposes in stables, is the fact that it possesses great absorptive powers for liquid, and in this respect ranks considerably above straw. Whereas the absorptive capacity of straw for liquid amounts to about two and a quarter times its own weight, sawdust—provided it is perfectly dry—is capable of absorbing about four times its own weight. Thus, sawdust makes both a dry and a clean bed. It does not, afford such a soft bed for horses as straw litter, but still they are quite comfortable on it, provided the sawdust is put down sufficiently thick.

Besides possessing great absorptive powers, sawdust has certain deodorising properties, which considerably enhance its value and usefulness as a bedding material in stables. From a hygienic point of view it is certainly in every way excellent, being absorptive, clean, deodorising, and cool to the feet. Those who have never used sawdust as bedding material in the stable may perhaps think that it is not particularly clean, but practical experience of it will soon prove to anyone who has any doubt about it that there is no cleaner kind of litter than sawdust. It is true that when a horse lies down on a bed of sawdust particles adhere to its coat or to its clothing, while some is apt to adhere to the legs, but it can be easily brushed off, and there is certainly no reason why sawdust should be objected to as a bedding material on this account.

The principal advantage which sawdust possesses as bedding material consists in its cheapness, and the fact that it can be obtained at a low cost is the chief and generally the sole reason why it is used in stables in preference to straw or peat moss litter. In stables where it is essential to observe the most rigid economy the use of sawdust is certainly to be recommended, since a considerable saving can be effected by using it instead of straw. Sawdust cannot, however, be readily or cheaply obtained everywhere. It is available at a low cost only in some places, and particularly in the neighbourhood of sawmills. Sometimes a supply of sawdust can be obtained from a sawmill practically for the asking, it being necessary merely to fetch it away.

Broadly speaking, in bedding down horses with sawdust a little over a cwt. will serve a horse standing in a stall for a week. When a horse is quartered in a loose-box a larger quantity per week will be required. If the supply is very plentiful, more than the above-mentioned weekly amount can be used with advantage, and a deeper bed put down, thus rendering the latter all the more comfortable for the horse. One cwt. per week may be looked upon as the minimum

quantity of sawdust necessary in order to keep a horse comfortably bedded down, but if a larger quantity is available, so much the better. When sawdust is used as litter in a stable, the best method of management to adopt in regard to the keeping clean and renewal of the bedding is as follows :—First thing in the morning, after the stable is opened, all droppings, as well as all wet portions of the bedding, should be removed with the stable-shovel and manure-skep, the holes which are made being subsequently filled up with fresh sawdust. The bedding should then be levelled. This is best done by raking it over with a rake ; failing which the levelling must be done as best it may be with the stable-fork.

During the daytime all droppings should be removed as often as possible. In the evening wet portions of the litter should again be removed and replaced with fresh sawdust, and the whole properly levelled down. In this way sawdust bedding can easily be kept in good order and perfectly sweet and clean for a considerable time. At frequent intervals—say once every seven or ten days—the whole of the sawdust should be removed or piled up in a corner of the stall, so that the floor may air properly and get dry if it is wet. So long as sawdust remains dry it can be used, but once it is saturated with urine it is no longer serviceable.

When using sawdust for bedding-down purposes the floor of the stall or loose-box should be covered with it to a depth of four inches, that being the minimum depth which the bed ought to have if a horse is to lie comfortably, but by preference it should be made an inch or two deeper than that.

It is most important that the sawdust used should be perfectly dry, otherwise it is unsuitable for use in the stable, damp sawdust being unwholesome and not possessing much absorptive capacity. Sawdust which is obtained from unseasoned and green wood is unsuitable for use as bedding material in the stable, because it is not properly dry, and therefore deficient in absorptive power.

One great drawback connected with sawdust is that it makes a bad manure. It takes a long time to get thoroughly incorporated with the soil and decomposes very slowly in the ground. For this reason farmers look askance at manure made from sawdust, and do not care about using it.—“ EXPERT ” in *Agricultural Gazette*.

**The Importance of Raising Calves.**—The long and irritating continuance of foot-and-mouth disease in England and Ireland, and its serious consequences to agricultural interests generally, and the dairy trade in particular, raises once more the important question of calf rearing. The dairy business, to be profitable, must be



conducted in a business-like manner. All over the country to-day there is a scarcity of good dairy cows, and it is impossible to buy them at reasonable prices. No doubt this scarcity and high prices are accentuated by the present restrictions on the movement of cattle, still, under normal conditions, the price of calvers is out of all proportion to that of other stock. The practice of buying fresh cows, and feeding them heavily until they become fat and dry off, then selling them to the butcher, is fast thinning out our dairy cows, and is nothing short of a national blunder. Then we have many dairy farmers who, instead of raising their calves, sacrifice them for veal, and buy cows of unknown breeding and production; aye, and some even buy high-grade stock at prices several times greater than it would take to raise their own. The so-called drudgery of calf rearing, combined with the irksome duty of milking the cows, which is indispensable to the profitable rearing of calves, tells against a large return to calf rearing on farms where the ladies are highly educated, and the maids are bent on town life. All these obstacles must be overcome if we are to meet the current demand for sweet milk, far less for beef, for our own needs; and woe betide the day when the British farmer allows the foreign farmer to compete with him in supplying sweet milk to the British consumer. I have no hesitation in prophesying that it will come, unless we turn to calf rearing.

The foundation of all our dairy herds is in the calf, and the selection of the calf lies in the sire and the dam, and this selection must be made by the farmer with good judgment, combined with scientific knowledge, both of which are more easily acquired to-day than in the past. No mere slipshod and wasteful method of mating any kind of a bull to any kind of a cow can now be tolerated. When records of the quantity and quality of milk are in such evidence, there should be little uncertainty about the offspring.

While this important question of how to breed is just now much in evidence at agricultural colleges and dairy schools, the equally-important question of how to rear the calf is almost entirely neglected. Very few students can tell you what weight of new milk a newly-dropped calf should get, or what weight of skimmed milk to give, or when to begin to give it, or where and how the calves should be housed, or how to prevent the great mortality common in calf life, etc., etc. I hope this modest complaint against our schools (which otherwise are worthy of all praise) may be seen by those in authority, and special attention given to this all-important section of cattle rearing in their future curriculum.

In my frequent journeys through Great Britain and Ireland, I

find all the dairy experts up to the ears on how to breed, but the ignorance on how to rear is lamentable. When I ask, "Why don't you rear your own calves?" the invariable answer is, "So many of them die." There are reasons for everything, and there is one for this also, and our agricultural students should get practical as well as scientific teaching on how to prevent them "dying." The breeding and rearing of cattle at home is of paramount importance.—THE BUTTERMAN in *The Scottish Farmer*.

**The Suffolk Horse.**—In a small corner of a small county a breed of horses existed for very many years that few people knew of, and even fewer had seen. But gradually they were brought to public notice, mostly, perhaps, on account of their characteristic colour and shape. It was customary at the shows held years ago to have pulling matches, and many a wager was won or lost on this or that horse or team. Sometimes it would be Suffolk sinew against Suffolk. At other times the horse was matched against Shire or crossbred; but whatever the breed might be, the result was practically always the same. The fine chestnuts built for pulling threw themselves into their collars, and the day was won. Thus the breed obtained a name for "hard pulling," which was well deserved. This quality, though no longer tested in the show ring, is by no means a thing of the past, for it predominates in the Suffolk's character in a similar manner to the pugilistic instinct which plays so important a part in the life of all game fowl.

Practically all Suffolks, whether cart horses, mares, or stallions—for even the latter are often used for farm work—show the same keenness to move the load, however difficult the task may be. The horse leans well into the collar, every muscle and sinew is tightened, and even if the first, second, third, or more attempts are fruitless, the horse does not give up and refuse to pull. Nor is the service of a whip required to produce fresh energy, words of encouragement are sufficient to persuade it to try again until successful.

The docility of the Suffolk is astonishing; they are practically free from all vices, and good tempered in the extreme. In fact, so much so, that even when first brought up from the meadows and marshes, where their youth has been spent, they are led out on an ordinary halter without bridle. It is really surprising to see these great powerful horses being exercised on the halter by mere boys, without fear of accidents. The savaging of a groom is a thing practically unknown, and many a child has had his or her first riding lesson on the broad back of a Suffolk Punch. So quiet, in fact, is their disposition that the two-year-old cart colts are sent to plough

with no more than a preliminary handling ; thus "breaking-in,"—which on many farms means ill-usage, often ending in accident or the spoiling of the colt—on the Suffolk farm is a mere nothing.

In a horse, soundness is of the utmost importance ; disease means either loss of work or loss of capital. For a lame horse, apart from the cruelty of using him, is unable to do the work he would otherwise accomplish. Moreover, a horse that is particularly susceptible to disease is of little value in this workaday world. Man requires an animal free from disease, and of a hardy constitution which will enable it to resist disease. In these respects the Suffolk is remarkable.

In the show ring all but a very small percentage pass the great ordeal—the veterinary examination—and a visit to Suffolk studs gives but one impression, namely, that unsoundness among Suffolk horses is certainly rare. Yet, some years ago, the breed had an evil reputation, and was noticeably liable to various bone diseases ; not that it was actually worse in this than in any other breed of cart horses.

The owners of Suffolks fortunately woke up in time, and realising the importance of soundness, and that the future of the breed was in their hands, carefully eliminated stock susceptible to bone troubles and other complaints, and so built up a race of horses that are the pride of a county, if not of a country.

The stringent rules as to diseases issued by the Suffolk Agricultural Association, and the strict veterinary examination to which the horses were subjected at the meetings of the Royal Agricultural Society of England, played an all-important part in securing this end. Why the result should be so much better in the case of the Suffolk than in any other breed is not difficult to understand, if one remembers that work on a small scale allows of far greater accuracy than that of a large undertaking. Hence, as the number of breeders interested in this horse was comparatively small, the care taken to form a breed free from bone and other diseases has met with great success.

Suffolk breeders were not only stimulated in their efforts to eliminate the faults that really existed, and to spend both time and thought in making the breed more perfect, but the absence of a keen trade did not encourage breeding from anything except the best stock, and only those horses exhibiting good points were kept for stud purposes. Instead of the finest horses leaving the county, they remained to produce the blood that has been the backbone of the breed ever since.

What the Suffolk farmer and stockbreeder has done is really well worthy of investigation by the Eugenic Society. For every Suffolk

is born and grows up true to type, in colour and constitution, and even in temper. The colour is never anything but chestnut, from a red to a mahogany. At the present day the red chestnuts seem preferred, but every man has his own individual taste, and sometimes the mahogany, at other times the golden chestnut are in favour, but usually, for some reason, the Suffolk breeder likes a red mane. The adult horses have plenty of heart room, 8ft. being about the usual girth when taken behind the shoulders. The height should practically be 16½ hands, but Suffolks will be met with varying from 15½ to 17 hands.

People who judge the Suffolks from what they see at Shows form a very wrong opinion of the breed. A visit to a farm on which Suffolks are worked will leave a vastly different impression.

Unfortunately, for several years there was a tendency to judge Suffolks rather by weight than quality. All those interested in the Suffolk must be strongly against over-feeding. It is not the fault of the breeders that this so often occurs. It is a matter of winning, and if the judges prefer fat horses, fat horses they are certain to get. Over-feeding not only handicaps the trade, but also leads to ill-health. To over-feed and rarely to exercise amounts practically to asking for trouble.

The Suffolk is a horse suitable for both town and farm work. In the town their docility, soundness, and longevity, coupled with their attractive appearance, quick action, and their walking and trotting capabilities, have made them general favourites with those who have tried them. In the country their extraordinary power of working long hours without food, and their freedom from superfluous hairs around their feet, make them ideal horses for agricultural purposes. Taking everything into consideration, it is not surprising that all over England this breed is gradually making headway.

A general idea is that this horse has too little bone, but it must, however, be remembered that sufficiency, especially if it be of good quality, is of far greater service than too much bone. The Suffolk horse proves by the work it does, by the astonishing age to which it lives, and by its freedom from bone troubles, that there is no weakness in this respect.

It must be remembered that the Suffolk is a horse bred on light lands, hence the bone is not quite so heavy as that produced on the heavier soils.

Not only do the Punches live to a good old age, but their powers of fecundity are certainly extraordinary. Stallions have been known to travel for as many as twenty-one to twenty-five years,

and it is comparatively common to find mares over twenty years of age with colts by their sides. There is on record a case of a mare that bred until she was thirty-seven ; and these examples speak well for the constitution of the breed. During recent years the Suffolk has made decided improvement. Strong effort should be made to keep the best mares in the country, for in the last few years a great deal of good blood has been exported, owing to the great demand for both mares and fillies. The Suffolk Horse Society, realising this, has started a worthy scheme of nomination mares, which is a step in the right direction.

The Suffolk horse has by no means had his day. A time is coming when the demand for Suffolks will be greatly augmented, for every body requires soundness and docility, and in addition pulling power. It is also probable that the Suffolk will be required for the breeding of army horses, for it is particularly suitable for crossing purposes, in order to obtain strong but active horses—E. C. ASH in *Farmer and Stockbreeder Year Book*.

**Buttermaking.**—Miss Annie C. Speir, lecturing on this subject, to the West of Scotland Agricultural Discussion Society, said :— This branch of agriculture ought to have more attention paid to it than it has at present. It is only within the past twenty years or so that the people of this country have realised that we are falling behind other countries in the art of buttermaking. This is partly due to the position agriculture holds in this country as compared with a country like Denmark, whose main source of wealth comes from her agricultural produce, while with our country it comes from various other sources. Agriculture only takes a back seat, with the result that it does not get the same assistance from the Government that it does in countries such as Denmark and Holland. I don't intend to maintain that it would be advisable for us to make all the butter that is consumed in this country, but what one would like to see is less bad butter being put forth for sale. In the country there is far too much of this class of butter. The grocers in country districts could help solve this problem ; most of those collecting butter give the same price to all their customers. This, I think, is not just, and offers no encouragement to the butter-maker who takes extra care to have her product as good as possible. On the other hand, the indifferent buttermaker consoles herself by saying that without any extra work or care she can get quite as good a price as her neighbour, who is so particular. If the grocers would pay for the butter according to quality you would soon find that the careless buttermaker would begin to try and make a better product.

What is wrong with the butter in most districts is that it is not uniform in quality, and cannot be depended on, and mainly for this reason a great many people purchase foreign butter. I think that we have, if anything, quite as many bad as good buttermakers. It is a pity to see good milk spoiled by being made into bad butter either by carelessness or want of knowledge, such butter is sold at 9d. per lb. (it is only worth 4d.), when Danish butter is selling at 1s. 1d. and 1s. 2d. per lb. Country butter has such a bad name in some districts that it is almost impossible to get a decent price for it unless you can sell it privately. Now, what we teachers would like to accomplish is instead of the inferior butter at present being used by confectioners, biscuit manufacturers, etc., to get good eatable butter made. As a teacher I find that it is usually the people who are least in need of instruction who attend the class. These people are already making fairly good butter, but are keen to make it better, if possible. The really bad buttermakers think their product is quite good, and are quite indignant if anyone dare say that it is not. I sometimes think these people, in course of time, must have acquired a taste for rancid butter, just as many of us have acquired a taste for tomatos. Perhaps that is the case with the makers of rancid butter. At any rate, I can't find any other solution, and it certainly is anything but pleasant for one who has not acquired the taste to eat such material. Another type of buttermaker we sometimes meet with is the old-fashioned one, who is rather suspicious of a person who uses new appliances, such as thermometers, separators, etc. I rather like to meet with this type, and have picked up many a useful wrinkle from them. If you take them the right way they will come round and give the new method a trial. Under the old system, a great many of these people made very good butter, because they understood the souring of the milk in the first place, which is the important point in butter-making. A large proportion of the bad butter made at the present time is due to the change from churning lapped milk (whole milk soured) to churning cream. The former is steadily being done away with owing to the amount of labour it entails, as it takes about nine gallons of milk to yield the same quantity as one gallon of cream; but some of the finest butter is made in this way. People with small quantities of milk (and it is usually from them we get most of the bad butter) had to churn more frequently, when churning whole milk, for the churn would not hold it all. Now the descendants of these people keep gathering their cream, so as to have their churn (in some cases the one their grandmother used) fairly well filled, with the result that the cream which has been

first put into the souring vessel is rancid before the last lot is added, thus spoiling the whole churning. Another very common cause of butter being rancid is the cream being left too long on the milk. The thrifty housewife is so keen to get every drop of cream out of the milk that she sometimes waits until the milk has started to sour before she skims it, with the result that the butter is spoiled.

The separator overcomes this difficulty, and there are some cheap machines of the small type now on the market within reach of the people with one or two cows. You can get quite as good, and sometimes even a trifle better, flavoured butter by hand skimming, but the place where the milk is set must be suitable for it. It is seldom in small dairies that the dairy is kept solely for milk. Again, to get the finest quality of butter from hand skimming, the milk would require to be skimmed at the end of twelve hours, as the best cream always rises first. This would not be profitable, as the skim milk would contain about 2 per cent. fat, varying with the milk of individual cows, as the cream rises very much quicker in some milk than in others. The usual time to skim milk is at twenty-four hours, but in thundery weather it is advisable to take it off earlier, or you may find the milk has turned by the time you get it skimmed. If the milk is skimmed at the end of twenty-four hours the skim milk contains about 0.8 per cent. of fat, while if a separator is used, and working properly, the separated milk only contains the merest trace of fat, 0.1 per cent. at the most. When reckoned up at the end of the year, this makes a difference of 25 to 30 lbs. of butter per cow in favour of the separator, so that it very soon pays for itself.

Milking must be carried out in a quick, clean, and quiet manner, care being taken to strip the cows thoroughly, as the milk which comes toward the end is very much richer in butter-fat than the first drawn milk. This is important in all branches of dairying, but more especially in buttermaking. After milking, the milk should be thoroughly strained and separated, or set in basins, the object being to get as much cream as you can, and as quickly as possible. When a separator is used the cream must be cooled down after separating, or the butter made from it will be greasy.

We now come to the ripening or souring of the cream. This, I think, affords a splendid example of the assistance science has given to buttermaking, and shows, as Principal Paterson pointed out, that practice and science must go hand in hand, the one not being perfect without the help of the other. As the souring of the cream is the foundation of the making of good butter, it is essential that everyone engaged in this work should thoroughly understand the

changes which take place in the cream at this time, and how they affect the butter. Without the aid of science many of our forefathers made quite as good butter as is still made, but there was not the same certainty about their work; they did not produce the uniformity that is now wanted in butter. It is here that science has greatly benefited us, as knowing the composition of milk and the working of bacteria, we are able to follow the change which takes place in milk from the time it is drawn from the cow until it is ready for churning. When milk stands exposed to the air, germs of many different kinds get into it, and feed on it, as milk is an ideal food for germs as well as for the higher forms of life. These germs are floating in the air, and the special ones buttermakers are interested in—viz., the lactic germs—are found in largest numbers in byres and dairies. These lactic germs feed on the milk sugar, and convert it into lactic acid; when a certain proportion of acid is produced the casein of the milk coagulates and becomes insoluble. The butter fat, which goes to form the butter, is in the milk in the form of small globules. These globules are steeped in the lactic acid, and it is this steeping process which gives to the butter its fine flavour when churned. The lactic acid also acts as a preservative to the butter, making the butter keep better than if made from sweet cream. Where lapped milk is churned we have the whole of the milk sugar to produce lactic acid for the butter fat to steep in, and this is the reason why you often get a fuller flavour from whole milk butter than from cream butter. The best ripening temperature is from 56 deg. in summer to 65 deg. in winter. The most suitable vessel for souring cream in is one of glazed earthenware, as there are no joints about it, and the temperature of the cream does not vary so much as in tin or enamel. It is also thought that the acid in the cream when sour attacks the tin and taints the butter. Earthenware is not very handy for large quantities. Oak tubs are sometimes used, but great care must be taken in washing and scalding, there being so many seams in the wood, and cream is apt to lodge there, and once wood becomes tainted it is not easy to get rid of the taint.

Cream may be soured in two ways, viz., naturally or artificially. In warm or mild weather it is possible to carry out the former method—viz., allowing the cream to stand exposed to the air, stirring frequently, at least twice a day, until it becomes sour; this takes from two to three days, and when ready the cream should have a sharp, acid taste and smell, and should be thick and syrupy. In cold weather, when the temperature of the dairy often falls below 50 deg., at which temperature lactic germs are inactive,



it is impossible to sour cream naturally ; other germs which thrive best at a low temperature are active in the cream, and overcome the lactic. These germs produce a bitter taste in butter, and in some cases the cream is unchurnable, and goes to froth. This is the reason why so much bad butter is made in winter.

To overcome this difficulty cream must be treated artificially to produce souring, viz., by using a starter. A starter is something added to the cream to assist in the souring—*e.g.*, good buttermilk, or soured separated, skim or whole milk, and last, but by far the best, an artificial starter. When adding an artificial starter to cream we are simply adding pure lactic acid germs, instead of trusting to their being present. The starter should be added to the cream as soon as it is skimmed, and before any other kind of germ has time to get a hold in the cream. If any other germ obtains a hold first, it is sure to kill out the lactic altogether, and the result is bitterness. Buttermilk, soured separated, skim, and whole milk contain a goodly proportion of lactic germs, but they also contain many others, which, for all we know, may be objectionable, so that it is safer to use a pure culture. Where small quantities of cream are being dealt with, and one does not wish to go to the trouble of making fresh starter daily, quite good results can be got by adding an artificial starter to the cream for one churning, then using the buttermilk from that churning as a starter for the next, and so on as long as the buttermilk is good. Buttermilk from properly soured cream makes a good starter when used fresh, but buttermilk should never be used as a starter if the cream has become over-ripe, or if the butter has any taint from feeding, for then the undesirable flavour will be continued in the next churning. The best way to get rid of taints from feeding—*e.g.*, turnips—for separated cream is to heat to 160 deg., and then cool again, but for setting milk a pinch of salt-petre is more effective. The quantity of starter to use depends on the temperature and thickness of the cream and how it has been skimmed. Hand-skimmed cream requires less starter than separated cream as it is already twenty-four hours old. The usual quantity of starter to use is one gill—one teacup full—to one gallon of cream to sour in twenty-four hours, temperature 56 deg. to 60 deg. If the cream has to stand two days half that quantity should be used, if three days one-third, and so on. When the buttermilk is not so strong it requires about one quart to sour one gallon of cream in twenty-four hours. There is a difference of opinion regarding the length of time cream should take to sour. Most of the creameries now sour their cream for churning in twenty-four hours, but personally I think by using less

starter, you get a more finely flavoured butter from cream which has taken two to three days to reach the desired stage; the longer steeping of the butter fat in the acid seems to throw up the flavour in the butter. It is evidently very mild-flavoured butter that the consumer now wants, hence the popularity of creamery butter. A starter in summer is of great advantage also, but many buttermakers who do not understand starters are inclined to use too much in summer, and spoil their cream, especially when they are only churning twice a week, or perhaps not so often. If cream is not churned when ready the lactic acid is changed into butyric acid. The great advantage of using a starter is that it keeps back the growth of objectionable bacteria. I have dealt at considerable length on this part of buttermaking, because it is the foundation of the whole subject, as without having properly ripened cream it is impossible to make good butter, no matter how carefully it may be churned. However, it is possible, to a certain extent, to spoil properly soured cream by careless churning and working of the butter. Cream for churning should not be too thick. Cream yielding from 2 to 3 lb. of butter at the most to each gallon is quite thick enough. If the cream is thicker than this, there is not sufficient milk sugar left in the cream for the production of lactic acid to thoroughly steep the butter fat in, and you don't get either such a good flavour in the butter or butter that will keep so well as from thinner cream.

By the use of a thermometer we can now tell fairly accurately how long the cream will be in churning, but we must first find out the class of cream we are working with. No fixed temperature can be given for churning cream, as a temperature which suits one kind of cream may be either too low or too high for another class. The cream should be brought to such a temperature that it will churn in from half to not more than three-quarters of an hour. I have known cream that required a temperature of 70 deg. F. to produce butter in that time, and the butter was not soft or inferior in quality. It is quite a common occurrence at a class where students are bringing their own cream to have a variation of 4 deg. or more in different churns, yet each take about the same time to churn. Roughly speaking, the summer temperature should be 56 deg. to 60 deg.; winter temperature, 62 deg. or higher as the case may be. If cream is too thick you get greasy butter, so have it moderately thin. The churn should not be too full. The butter should be churned into grains, so that the buttermilk can be thoroughly washed out in order to make the butter keep better. Two washings are sufficient, using enough water to float the butter in. The

working should be carefully done so as to expel the water without spoiling the texture of the butter. The butter should then be neatly made up, as neatness in buttermaking, as in everything else, catches the eye of the purchaser. If buttermakers want to compete successfully with the creameries, they must churn more frequently, even if they have not much cream at each churning. Properly made, fresh butter should keep good from ten days to a fortnight. I think if show committees would make a point of having all butter shown collected at least a week before the show, it would be a much fairer test than under present conditions. I have heard people who show butter, and are prize winners, say that it is better to churn the butter the day before the show, and not to wash the grains of butter at all, or very little. The reason is that butter which has had the buttermilk thoroughly washed away is not at its best until the third or fourth day following, while butter which has not had the buttermilk washed out, but only worked out, has its best flavour the next day, though it goes bad much more quickly.—From the *Scottish Farmer*.

**Sending Animals by Railway.**—It behoves every owner of animals to know what is his exact legal position as an employer of the railway company for the conveyance of his animals by rail, having regard to the serious consequences and irretrievable loss which may occur to him through ignorance of the law.

At one time the railway companies either refused to carry animals altogether or refused to carry them except at the owner's entire risk, but by Section 7 of the Railway and Canal Traffic Act, 1854, it was provided that every railway company "shall be liable for the loss or for the injury done to any horses, cattle, or other animals, or to any articles, goods or things, in receiving, forwarding or delivering thereof, occasioned by the neglect or default of such company or its servants, notwithstanding any notice, condition, or declaration made and given by such company contrary thereto, or in anywise limiting such liability; every such notice, condition, or declaration being hereby declared to be null and void." The section, however, contains the following provisos:—(1) That the sections shall not be construed to prevent such companies "from making such conditions with respect to the receiving, forwarding, or delivering of any of the said animals, articles, goods or things as shall be adjudged, by the court or judge before whom any question relating thereto shall be tried, to be just and reasonable." (2) That "no greater damages shall be recovered for the loss of or for any injury done to any of such animals beyond the sums hereinafter mentioned"—viz., for

any horse, £50 ; for any neat cattle, per head, £15 ; for any sheep or pigs, per head, £2 ; unless the person delivering the same to the company shall at the time of delivery " have declared them to be respectively of higher value than as above mentioned," in which case the company may " demand and receive by way of compensation for the increased risk and care thereby occasioned a reasonable percentage upon the excess of the value so declared above the respective sums so limited as aforesaid, and shall be paid in addition to the ordinary rate of charge ; and such percentage or increased rate of charge shall be notified in the manner prescribed in " the Carriers Act, 1830, and shall be binding upon the company in the manner therein stated. (3) That " the proof of the value of such animals, articles, goods and things, and the amount of injury done thereto, shall in all cases lie upon the person claiming compensation for such loss or injury." (4) That "*no special contract* between such company and any other parties respecting the receiving, forwarding, or delivering of any animals, articles, goods or things as aforesaid shall be binding upon or affect any such party unless the same be *signed* by him, or by the person delivering such animals, articles, goods or things respectively for carriage." (5) That the section shall not " alter or affect the rights, privileges, or liabilities of any such company under " the Carriers Act, 1830, with respect to the articles of the description mentioned in that Act.

This section only extends to loss or injury occasioned by negligence, or default in the nature of negligence, on the part of the company or of their servants while acting within the scope of their employment, and does not therefore affect the right of the company to make a special contract against loss by theft by their servants without such negligence or default. It extends to all animals, notwithstanding proviso 2, and by that proviso the amount of damages recoverable where there is no declaration is limited only in cases of the animals which it specifies—viz., horses, neat cattle, sheep and pigs. The declaration of value, even though not part of the contract of carriage, will form, as against the customer, the basis on which damages will be assessed. " Injury " includes in the case of animals, injury caused by want of food or water through negligence in delivery. The neglect or default of a railway company or its servants does not extend to the acts of a servant beyond the scope of his employment, such as theft.

In *Blower v. Great Western Railway Company* it was said to be the duty of a railway company to provide vehicles suitable for the proper and safe conveyance of animals by railway, though in *M'Manus v. L. and Y. Railway* the railway company tried to contract them-

selves out of this liability. Here the plaintiff sent three horses by the defendant's railway, and signed a consignment note which contained a condition to this effect:—"Subject to the owner's undertaking all risks of conveyance, loading and unloading whatsoever, as the company will not be responsible for any injury or damage (howsoever caused) occurring to live stock of any description travelling upon their railway." During the journey a hole was knocked in the bottom of the vehicle, with the result that one of the horses got its leg through and injured itself. The railway company denied liability, but the court held that the aforesaid condition was unreasonable, and therefore void, and that the company were liable for not providing a sufficiently strong truck. In giving judgment, Mr. Justice Williams said: "The sufficiency or insufficiency of the vehicles by which the company are to carry on their business is a matter, generally speaking, which they alone have, or ought to have, the means of fully ascertaining. And it would not only be unreasonable, but mischievous, if they were to be allowed to absolve themselves from the consequences of neglecting to perform properly that which seems naturally to belong to them as a duty."

But if the vehicle is strong enough to secure the safe conveyance of the animal under normal circumstances, and it effects its own escape and gets killed, or in some other way injures itself, then the railway company are not liable. Thus in *Kendall v. L. and S.W. Railway*, a horse was sent from Waterloo to Ewell, and although the journey was a normal one so far as the company itself was concerned—nothing happening to the train nor anything occurring likely to frighten the horse—and although the journey was quite a short one, the horse, on arrival at Ewell was found to have sustained severe injuries. The plaintiff was, of course, unable to prove any negligence on the company's part, notwithstanding which he sued them for damages, but his claim was dismissed, one of the judges remarking—"There is no doubt in this case the horse was the immediate cause of its own injuries. It slipped, or fell, or kicked, or plunged, or in some other way hurt itself. If it did so from no other cause than its inherent propensities, 'its proper vice,' that is to say, from fright, or temper, or struggling to keep its legs, the defendants are not liable. But if it so hurt itself from the defendants' negligence, or any misfortune happening to the train though not through any negligence of the defendants, as, for instance, from the horse-box leaving the line owing to some obstruction maliciously put on it, then the defendants would, as insurers, be liable."

Again, in the case already mentioned, *Blower v. Great Western*

Railway, it was shown that the plaintiff handed the defendant company at a point close to their Monmouth station, a bullock to be conveyed to Northampton, and during the journey it escaped from the truck, and was killed. The evidence showed that the animal had become restless during transit, and, having freed itself effected its own escape. On these facts the court held that the company was not liable—they having fulfilled their part of the contract and provided a truck strong enough to hold cattle under the ordinary circumstances of a railway journey, and the escape of the bullock arose from no other cause than its own restiveness or frenzy. And the plaintiff's claim, which was for the full value of the animal, was accordingly dismissed.

A railway company is bound to carry animals as expeditiously as possible, and with care, and without preference to any one consignor or body of consignors. Hence, in *Page v. Great Northern Railway of Ireland*, where it was shown that a consignment of cattle was seriously delayed through the company giving preference in despatch to another trader's consignments, the plaintiff recovered damages.

Again, when loss of or depreciation to animals is caused through the company's negligence, then the carriers are liable. In *Smith v. Midland Railway Company* the plaintiff sued for damages for loss alleged to be due to rough shunting. He sent a consignment of eight cows from Derby to Bedford, and signed a consignment note, which contained a condition to the effect that the company would not be responsible for any loss or injury caused to any animal, if such damage were occasioned by suffocation or being trampled upon, or by the kicking, plunging, or unruliness of the same, or of any other animals carried with it; nor for any injury or damage occurring to the same whilst travelling or in loading or unloading, unless such damage or injury should be caused by negligence on the part of the company or their servants. On arrival at Derby it was found that one cow had a broken leg, another was lame, and two others were bruised and otherwise injured. The plaintiff thereupon sued the company in the County Court, and although he was unable to *prove* any negligence on the part of the company, argued that from the nature of the injuries it was evident that negligence had occurred in shunting the train, and this had caused the injuries to the animals. He succeeded in the County Court, but on appeal the decision was reversed and judgment given in the company's favour, the court holding that the injuries were quite as consistent with the animals, having become restive, as with the unreasonable jolting of the train, and it was for the plaintiff to give proof of the negligence he alleged. In *Pickering v. North-Eastern Railway Company*, which was a

claim for damage to a horse travelling in a horse-box by a mineral train, such proof was actually given. The evidence went to show that the train had been subjected to a great deal of violent shunting, and that most of the trucks of which the train was composed were not fitted with proper couplings. The court, therefore, held that there was sufficient evidence of negligence, and awarded the plaintiff the damages he claimed.

As was stated at the beginning of this article, railway companies are not responsible beyond a certain specified sum if an animal be injured or lost in transit, and hence it is necessary to insure all valuable animals intended for conveyance by railway. The result of non-observance of this rule is brought out in the following case : In *Williams v. Midland Railway*, a dog worth £300 was sent by railway packed in a hamper. During transit the dog was destroyed by fire, owing to the negligence of the company's servants, but the court held that as no declaration as to the value of the dog had been made, and no insurance paid, the company were not liable beyond the sum of £2, the amount named in the afore-mentioned Act.

The case of *G.N. Railway Company v. Swaffield* brings out the duty of the consignor as to the removal of his animals on arrival at the station to which they are consigned. Here the defendant omitted to meet a horse which was consigned to him, with the result that the stationmaster, in order to secure that it received proper food and attention, put the animal up at a neighbouring livery-stable (there not being accommodation for it at the station) till the owner arrived. A dispute arose as to who was liable for the keep of the horse whilst it was stabled there, but eventually the railway company settled with the livery-stable keeper and sued the owner for the amount paid. And the court gave judgment in favour of the company, holding that as there was no one at the station to receive the animal the company were entitled to do what they had done, and to be recompensed for their trouble in this connection.—*GEO. B. LISSENDEN, in Live Stock Journal.*

**The Diminishing Rural Population.**—To anyone who is interested in the subject, it must be very evident that in the rural districts there is something lacking. A need for some great reform is showing itself ; one is always hearing the same remark, that skilled labour is becoming more and more difficult to obtain, and we are frequently meeting the labourer's son or the labourer's daughter who has decided that the country is not the best place for them and they must go to the town.

What is the reason for this gradual egress of the best of the labour-

ing community ? The reasons are many, and are, for the most part of an arbitrary nature. Some say it is the low wage ; others lay the blame at the door of the man who has relinquished arable farming for grazing. Many and sundry are the reasons put forward ; most of them contain a truth, but not one of them alone is the whole truth.

“ Back to the land ” is a favourite cry amongst a certain class of people, and anyone who dares mention the agricultural labourer to a member of that class is liable to get that person’s views fired at him with great and appalling vigour. “ Back to the land ” is a false doctrine. To begin with, it would be next to impossible to persuade those who have left the country to return to it. They left to improve their position as it was then, and the reason they do not return is because they have achieved their object. No, it is not required to call back those who have left us—if they return they will be welcome. Rather let us concentrate our efforts on the task of keeping on the land those who are now growing up on the land.

In the present day rural school a child is taught to read and write, and is given as good an education as the town child of similar social standing. Well and good, but should the country child be under the same curriculum as the town child ? Would it not be more to the advantage of the community at large if the future labourer were given a strictly utilitarian education, were taught the subjects necessary to him in his after life ; such subjects as writing, reading and arithmetic, and should then be allowed to leave school at an earlier age than he leaves now ? This alone would be inadequate, but add to it technical classes and evening classes, classes such as ploughing, hedging, shearing, milking, etc. Now a child leaves school with an education that fits him more for town life than for life as a labourer. If he does decide to become a farmer’s boy, and most of them do, he is put to the most monotonous work, and is given only the most meagre of chances to learn skilled work. The farmer is not to blame ; on the contrary, it is not his duty to turn his farm into a school for young labourers. If there is anything at all progressive in the boy he soon gets tired of educating himself in such a painfully slow way ; he becomes discontented, and finally goes to the town, thus we lose the cream of the younger generation.

Let us suppose we have educated our youngster in an ideal manner, and he has decided that agricultural labouring is the only occupation for him. Well, he lives in the farmer’s house as perhaps a horse-boy, working the second team until he is about twenty-five. Now our labourer must marry. Supposing he does, he must have a



cottage. What attraction does the average cottage hold out to a man after he has been living in a farm-house for some years? Some may think this is not a very important point, but a minor detail, yet it is a point which carries great weight.

Granted that you have installed a system of education that answers the purpose, and that the boy stays on the land, what are his prospects? He will be an agricultural labourer, highly skilled, but he will never earn more than the labourer does to-day. If anything he is likely to earn less, for by this system you will increase the supply of labour, and that is a fairly safe way of cheapening it. It is necessary to give the man a chance to go beyond being a labourer all his life. He cannot hope to be a farmer for he has no capital. An intermediate step must be created, and the only remedy at present is the "Small-holding." No, not small-holdings as they are at present; there is, one is led to think, something wrong with them at present. Let it rather be some co-operative system, after the style of those model holdings on Lord Lincolnshire's estate. Here a man can learn the art of managing land and the rotation of crops and all the daintier points of the food-producing art; for it does not follow that because a man is a skilled farm labourer he is also skilled in the farmer's art. Let him therefore learn his lesson on the small-holding, and then if in time he has saved money, let him take a small farm. It does not follow that because you have given the labourer a chance to become a farmer he will supplant the farmer now dominant in England. The system would introduce a healthy competition as to who could adopt the most scientific and most economic methods. If the English farmer is the man we think him to be, he will still hold his place as the best "large" farmer on the earth.

Thus it would seem that to overcome the present trouble—which is instrumental in raising the cost of production, and therefore the cost of produce—it would be well if sundry alterations were made in rural education, if the housing of labourers were considered, and if small-holdings could be made to work on a co-operative system.—"J. B. P." in *Farm and Home*.

**Keeping Milk Records.**—To every person who owns a dairy herd the question of keeping a milk record should be and is in a very large number of cases an extremely interesting one. In the actual taking of the record there is very little difficulty or trouble, and only a slight diversity of opinion as to how it should be done; but in tabulating and reading the results there are several vexed and complicated problems to be considered. Turning then firstly to the practical taking of the yields. All yields should be taken in weight

not volume ; it is impossible to measure volumes with any degree of accuracy ; the better the milker the more inaccurate the result.

A well-made spring balance, with a clearly marked dial showing halves or quarters of a pound, is the best, although in some herds the weights to 2 ounces are taken ; for the every-day tenant-farmer reading to  $\frac{1}{2}$  lb. will be found to be sufficiently accurate.

Records can be taken at each milking, or at each milking on one day in the week, multiplying the figures thus obtained by seven. This latter method is wonderfully accurate if a day in the middle of the week is taken, *i.e.*, Wednesday or Thursday ; but we consider it simpler and better to weigh the milk at each and every milking. A sheet ruled for the seven days in the week, giving the names or numbers of the cows, should be fastened in the cow-house close to the weighing machine. As each cow is milked, the milker weighs the milk and enters the amount on the sheet.

This will take about fifteen seconds. Allowing the ordinary number of ten cows to each milker, it means that the milking takes two and a half minutes longer, an infinitesimal amount of time for the information received. These weekly sheets are totalled, and the quantities thus obtained are entered in a book from which the totals for the season are taken. We have found that there is no trouble to get the milkers to follow this plan, and a normally intelligent cowman who takes a pride in his stock will shortly become as keenly interested in the matter as the master.

Moreover, the record-taking becomes just the normal routine of every-day work ; whereas when the weighing is only done once a week it becomes a more special task which may be forgotten or neglected if the master happens to be away, or is very busy with the hay or during harvest. It has been recommended to take the readings only once a week, but on the four middle days, *viz.*, Tuesday, Wednesday, Thursday and Friday in succeeding weeks, in order to be more accurate ; this would, however, rather complicate matters, without gaining to any appreciable extent in accuracy. The best and simplest method, we are firmly convinced, is that of weighing at each milking.

We may legitimately assume that the object of the farmer is to obtain as much milk as possible, to obtain a calf in each twelve months, and that a cow should be dry for only about eight weeks before calving ; thus she should not be in milk for more than forty-four weeks. If a cow is either not served, or does not stand for some time, so that some fifteen or sixteen months pass before the next calf is born, she will be in milk for a longer period than forty-four weeks, and will naturally give a much larger yield.

We know of one cow which gave on the average 6,138 lbs. of milk after each of her first three calves, being in milk forty-two, forty, and thirty-nine weeks respectively. After the fourth calf she would not hold to the bull, and remained in milk for seventy-one weeks, during which time she gave 11,927 lbs. of milk; if these last figures are included it makes her average yield 7,592 lbs., whereas without them it is only 6,134 lbs., a very considerable difference as regards selling any of her heifer calves when they came in as down calvers. Personally we are of opinion that no milk given after forty-six weeks—to allow a slight margin—should be reckoned in the yield.

There are several methods of rearing calves, but in a very large number of cases the calf remains with the cow for about the first week. What is the cow's yield for that week? Some persons say that it should be estimated from the yield a month after calving; we, however, consider this too high an estimate; for a good cow will be giving 50 lbs. a day at that time; this means that another 350 lbs. is to be added to the total.

The time of year at which a cow calves will make a difference to her record. A cow calving in December, January, or February will give a greater yield than if she had calved in May, June or July. In the former case the original flush of milk will be over just about turning-out time, when the fresh young grass will start the milk flow anew; for without exception a cow will give a considerably larger yield in May than in April; whereas in the latter case, when the first flush of milk is over the days will be drawing shorter and the animal will be coming on to winter feeding and housing, which certainly do not tend to increase the flow of milk.

Thus for breeding and pedigree purposes a lower yield in the latter case will be as good as a slightly higher one under the first conditions. Therefore a true record should state, in addition to the amount of milk given, the dates upon which the cow calved and went dry.

When records have been kept, the question arises, how can we make use of them in a practical way? Undoubtedly we should only keep those animals which are up to a certain fixed standard, and only keep for breeding purposes the offspring of standard animals. If a dairy herd is to be started *ab initio*, the best plan is to purchase stock, as far as the capital permits, with a good record—750-gallon cows or heifers therefrom, and a bull from an 800-gallon cow—and to set the standard at 750 or 800 gallons.

In grading up an established herd of ordinary Shorthorn type

dairy cows, we must begin with a lower standard, 600 gallons for the cow, and at the same time use, if possible, an 800-gallon bred bull. By retaining the heifer calves from the heaviest milkers, always using a pure-bred sire of a first-class milk-record pedigree, we may be able in some three or four generations to raise our standard to about 800 gallons. A possible critic may say that 600 is too low a standard at which to commence, but we doubt whether the average of the ordinary fair class of dairy cattle goes much over 500 gallons at the present time.—EDRIC DRUCE in *Agricultural Students Gazette*.

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## The Farmer's Library.

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### NOTES AND REVIEWS OF NEW BOOKS.

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- 1.—*Soil Conditions and Plant Growth.* By E. J. RUSSELL.  
London: Longmans, Green and Co. 5s.

This book is one of a series of monographs on bio-chemistry. The name of the author, who is now Director of the Rothamsted Experiment Station, is well known to most of our readers, for his work on soils, and more especially the bacteriology of soils, has frequently been noticed in the *Journal*. In this book Dr. Russell brings together all the salient points relating to the conditions in soils affecting plant growth which are known at the present day, and states the sources from which he culls his facts. To the agricultural student one of the most valuable features of the book will be the "selected bibliography," which contains the titles of 323 articles or books more or less directly bearing upon the subject matter.

The title of this book is not felicitous. "The influence of the soil on the plant," would, perhaps, have given a better idea of its contents and scope. But the book will be read and studied in spite of its title by all those who wish to keep abreast of the modern science of agriculture. It is always a pleasure to take up a work written by a master of his subject, especially as books and articles on agricultural subjects are too often written by men who are not practical workers at the subjects of which they treat.

The history of men's views regarding the soil and the part it plays in assisting the growth of a plant is not only interesting but most instructive, as showing how gradually truth is discovered. Thus in the 17th century, an investigator grew a plant in a weighed quantity of soil, to which he added nothing but water. At the end of five years the plant weighed 169 lbs. while the soil weighed the same as when the experiment was started "less about two ounces," so he came to the conclusion that the plant "arose from the water alone." Here was a typical case of a wrong hypothesis, supported by experimental evidence such as might reasonably be considered to conclusively prove its accuracy. Such a theory may last for years. Then come further experiments which begin to throw doubt upon the old hypothesis. A new theory arises, itself supported by certain facts,

and is accepted for a certain period, but it also is destined in time to be supplanted. Such has been the history of our knowledge of nature. Such it is likely to continue, and so long as the scientific spirit of doubt and investigation shall last many of the doctrines of to-day will be refuted by the experiments of to-morrow.

The author, having taken the reader rapidly through the past history of his subject, starts upon his main task of describing our present state of knowledge, the theories which are now accepted, and the experiments upon which those theories are based.

What are the requirements of the plant? In his second chapter the author seeks to answer this question. It might easily have been written in such a manner as to be dull and unprofitable to all but the scientific reader. In some parts necessarily it calls for a certain scientific training and knowledge of chemistry, but, as illustrating how far from technical the author has been whenever possible, we may quote the following passage on the necessity of light for plant growth :—

“ Brown and Escombe have shown that ordinary daylight is more than adequate for the purpose of assimilation, and can be reduced to one-twelfth without any ill-effect. It thus appears that the plant is adapted to the worst light conditions it is likely to find. . .

“ Whether, however, growth would be as good in this diminished illumination has not been shown; the experience of nurserymen indicates that it is not. Only those rays (chiefly red) absorbed by chlorophyll are effective. The light penetrating the smoky atmosphere of towns appears to have lost much of its activity, whilst light that has passed through a green leaf is practically useless for vegetation. Thus one crop will not grow in the shade of another: a dense crop such as oats, wheat or maize shuts off the supply of light for smaller weeds, and effectually prevents their growth, ‘smothering them,’ in the language of the farmer. This is often the cheapest way of cleaning weedy land. A newly-mown lawn is yellowish if the grass has been allowed to grow rather long, while the interior of a compact tree like the beech, is leafless. Forestry practices afford other illustrations: Young woods are planted densely in order that the stems of the trees may be kept free from branches, and the timber free from knots; later on, however, more light is desirable; heavy thinning of an oak or beech forest a few years before the final felling much increases the amount of growth. F. C. Schübeler maintained that the

extension of the hours of daylight during summer in northern latitudes more than counterbalanced the low temperatures, and actually shortened the time between sowing and harvest; Wille, however, has critically examined the evidence, and finds nothing to support this view, all observed differences being readily explained by differences in variety of crop, or in local conditions of soil and climate."

The requirements of plants having been determined, the next step is to consider how far these are satisfied by the soil. But we know that soils vary greatly in appearance, in their physical nature, in their chemical composition, and in their properties. So the constitution of the soil generally is the subject of next consideration, and the result of this study is concentrated into the following sentences :—

"The components of the soil do not form a mere casual mixture. A much more intimate mingling prevails, amounting almost to a loose state of combination, from which the separate substances are only extracted by drastic mechanical means, or gentle chemical treatment."

Intimately associated with the physical and other properties of soils are two substances—carbon and nitrogen (the chief constituents of organic matter) which play so important a part in influencing the fertility of a soil that they are treated to a chapter apart.

The author then passes on to the subject which, by his well-known investigations, he has made peculiarly his own, namely, "The Biological Conditions in the Soil." Subsequently, being, as he says, "in a position to summarise the effect of the various soil conditions on the growth of plants," a general survey of the subject receives careful attention.

So far the book appeals to every well educated agriculturist whether he be still a student or now engaged in the practical business of farming. The remaining chapter on soil analysis and its interpretation appeals more to the agricultural chemist as does a concise but valuable appendix on the methods of soil analysis. This work will not only add further to the reputation of the author, but it should help to convince practical farmers of the immense value of chemical and bacteriological science to agriculture.

2.—*English Farming, Past and Present.* By R. E. PROTHERO.  
London : Longmans, Green & Co. 12s. 6d.

To all who are interested either in agriculture, in history, or in the economic and social questions of the day, we heartily recommend this book. The first duty of those who are anxious to change the state of affairs should be the study of the circumstances which have led up to the present position. Unfortunately many reformers think only of what appears to them to be a defect and immediately propose some method to overcome it which may have been tried many a time in the past and failed. True, the conditions may in the meantime have so completely changed that a method which formerly failed may now be successful. But it is well to know the past history of a subject in which one is interested, and those who are anxious to improve the conditions of agriculture and rural life would be wise to study the history of the past as revealed in this book. As the author says in his preface :—

“ There seemed to be room for a consecutive history of English agriculture, written from a practical point of view, and tracing the influence of the progress of the industry on the social conditions of those engaged in its pursuit. Great economic changes have resulted from small alterations in the details of manufacturing processes. Similar changes may often be explained by some little noticed alteration in farming practice. The introduction of the field cultivation of turnips, for example, was as truly the parent of a social revolution as the introduction of textile machinery. Advances in agricultural skill, the adoption of new methods, the application of new resources, the invention of new implements, have been, under the pressure of national necessities, powerful instruments in breaking up older forms of rural society, and in moulding them into their present shape. Students of economic and social questions—and at the present day most people are interested in these subjects—will decide whether the influence of these simple and natural causes has been greater or less than is suggested. Even those who consider that their importance is exaggerated, may find in the record of their progress a useful commentary on the political explanations which they themselves prefer to adopt.”

The book starts with a consideration of the “ manorial system of farming ” or a period preceding the commencement of the 14th century. Historical records of this period are not plentiful, but one may form some idea of the farming from the old Romances,



a source of information which the author does not appear to have tapped. Those who have studied these Romances cannot fail to have been struck with the importance always attached to swine, and the author has evidently recognised this fact, for he says :—

“ swine were the almost universal live stock of rich and poor,”  
but prior to this he says :—

“ sheep were the sheet anchor of farming.”

Both statements are true, but the farmer as farmer was probably the outcome of a much later development of agriculture than the breeder of swine. Again we must probably go back to a much earlier date than the 13th century to account for the important posts which women occupied in the earliest days of agriculture. It was the call upon the men for fighting purposes which led to the development of female labour which the author thus refers to :—

“ The formation of words like spinster, webster, lyster, shepster, maltster, brewster, and baxter, indicated that the occupations were feminine, and show that women spun, wove, dyed, and cut out the cloth, as well as malted the barley, brewed the ale, and baked the bread for the family.”

The following extract which relates to dairy produce was probably to a large extent true of a period long anterior to the 13th century :

“ The dairy produce was a greater source of money revenue (than cattle) though the home consumption of cheese must have been very large. But the management was necessarily controlled, like the management of the stock, by the winter scarcity. The yield of a cow during the twenty-four weeks from the middle of April to Michaelmas was estimated at four-fifths of her total annual yield. Six to ten ewes gave as much milk as one cow ; but the best practice was to cease milking ewes at Lammas Day (August 12). Cheese-making formed an important part of the dairywoman's duties, and the purchase of the cloths and utensils used in its manufacture are a serious item in estate accounts. Cheese seems generally to have been made of skim milk, though superior varieties were doubtless found on the lord's table. Most of the butter made in the summer months was either sold, or salted and preserved in pots and barrels for winter use. The butter milk was either drunk, made into curds, or more rarely used to fatten pigs. The curds were eaten with wine or ale ; the whey, under the name of “ whig ” made a cool and wholesome summer drink. During the winter months, milk fetched three times its summer

price, and was generally sold. For this, among other reasons, calves were timed to fall before autumn. In the scarce months of winter, the price obtained for milk during eight weeks was supposed to be worth more than the calf."

There is a note to this extract which points out that butter was sold by the gallon, and that the great authority, Thorold Rogers, assumed that it must have been melted. The writer, however, can remember butter being sold retail in Wales by the pint, and the trouble there was to introduce the pound weight of 16 ounces for what had previously weighed nearly 20 ounces. This is a fair indication of how slowly customs change. We may often safely conclude that many customs have come down to the present day from the most remote past unless we have distinct proof to the contrary, but in doing so we depend to a large extent upon conjecture, and that is not history. The real history of farming probably commences with the 13th century, for the following reasons :—

" With the thirteenth century begins the practice of keeping estate accounts, in which the amount and cash values of the labour services are entered. Thus the uncertainty of villeintenance was modified, and the means were prepared for commuting obligations to work into their money equivalents. Already the causes were operating which hastened the process, and changed agriculture from a self sufficing industry into a commercial system of farming for profit. Population was increasing ; trade was growing ; urban classes, divorced from rural pursuits, were forming ; means of communication were improving ; money taxes took the place of personal services ; the standard of living rose ; coin was needed, not only to meet the demands of the government, but to buy the luxuries of more civilised life."

From this period onwards, the author takes us through the history of agriculture up to the present day. He warns us that :—

" Accurate comparison between the conditions of the rural population in the thirteenth and twentieth centuries seems impossible. Calculations based on the prices of commodities, involving as they must, the translation of the purchasing power of mediæval money into its modern equivalent, are necessarily guesswork. They are also to a great extent irrelevant, for few of the necessities of life were ever bought by the cultivators of the soil, and whether the corn that they raised was fetching

3s. or 6s. the quarter in a distant market made little difference to the inhabitants of villages. They grew it for their own consumption. Owing to difficulties of communication, every village raised its own bread supply. Hence a great extent of the land, which from a farming point of view formed an excessive proportion of the total area, was tilled for corn, however unsuitable it might be for arable cultivation. As facilities for transport increased, this necessity became less and less paramount. Land best adapted to pasture no longer required to be ploughed, but might be put to the use for which it was naturally fitted. Improvements in means of communication were thus among the changes which helped to extinguish village farms."

It was the late Baron Liebig who pointed out that, as in the past so in the future, improved means of communication would materially alter the conditions of farming throughout the world. The truth of his words, though written some thirty years since, has been amply proved. But the influence of facilities of transport were only slightly felt until the middle of the last century or even later. Other causes were at work to alter the state of agriculture in this country, and these causes the author takes up and elucidates one by one as he traces the history of agriculture from the 13th century to the present day. The work is of absorbing interest. The author has devoted many years to its compilation and how widely he has searched for the facts on which he bases his conclusions is shown by the immense number of authors cited. There is, fortunately, an excellent index which, by making it a book of reference as well as of pleasant study greatly adds to the value of this work which we most cordially welcome and recommend to our readers.

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3.—*Soils and Manures*. By J. ALAN MURRAY. London: Constable and Co., Ltd. 6s.

This is a more elaborate work on the two subjects of which it treats than we have seen for some time. It embodies the results of modern research, and enters into many details regarding the nature of the various manures used by the farmer, such as are not generally to be found in works on the subject. Crowded into its 330 pages is a vast amount of information, yet in spite of this we note several subjects which might have been treated more fully, and others which are not mentioned at all. The first five chapters

which give very lucid descriptions of the origin, physical and chemical properties, composition and biology of soils are excellent for the student, but not so useful to the practical farmer. The remaining chapters, however, which deal with fertility, the principles of manuring, and the various manures which are at the disposal of the farmer will appeal to the practical man quite as much as to the student.

Years ago the physical properties of soils were considered of immense importance, and were studied with much care, so far as the knowledge of that day permitted. Then came a period when the physical properties of the soil were neglected and attention centred solely on the chemical composition of soils. Further experience showed that chemical composition could not explain the fertility of a soil any more than its physical properties alone could offer an explanation. Then American scientists turned their attention to these physical properties to see if any new light could be thrown upon the nature of soils by more modern methods of investigation, and their researches were rewarded with considerable success. The author of this book might, with advantage, have drawn more largely on that source. Nevertheless the chapter on the physical properties of soil will be read with interest and advantage. The chapter on the chemistry of soils also contains a vast amount of information which will be of interest to the student or to the farmer who possesses a fair knowledge of chemistry. But we could wish that in this, and in the majority of agricultural chemical books, the requirements of the farmer were kept more to the front. Thus some analyses of soils are given showing the constituents present as determined by the old method of treating the soil with strong acids. But this method has long been improved upon by the estimation of "available" constituents. In his account of these constituents the author writes :—

"AVAILABLE PLANT FOODS.—The total acid extract is, however, a matter of secondary interest. A large proportion of the phosphoric acid and other ingredients dissolved by concentrated acids is present in the soil in a non-available state, *i.e.*, in such a state of combination that it cannot be assimilated by plants. The total acid extract does not, therefore, afford a reliable indication of the capacity of soils to provide for the requirements of the crops. For example, it has been found that soils which, experience shows, stand in need of potash manures often contain as much potash, soluble in concentrated acids, as soils which do not. Exactly what this so-called

"available state" may be is not known. That it is closely connected with the solubility of the compounds is obvious, and solubility depends partly on physical and partly on chemical conditions. For example, there is a great difference between the solubility of crystalline apatite and that of freshly precipitated phosphate of lime. Calcium phosphate, again, is probably more readily soluble than the phosphates of iron and alumina, especially if the latter have been dried or partly dried. All that can be said with certainty is that some substances which are not soluble in water can be assimilated by plants, and that much of what is dissolved by concentrated acids cannot. In any case, the available state cannot be defined in terms of solubility, because plants differ in their assimilative capacities; what is available to one is not available to another. There is, therefore, no absolute available state at all. Attempts to define it in general terms are apt to be misleading, and methods for estimating the amount of 'available plant food,' in the strict sense, are impossible."

If the author could have shown, in addition to the analyses of soils mentioned above, the available constituents in these soils, it would have added considerably to the value of the book and helped to elucidate his treatment of the subject of "available" constituents. Why is it that farmers at the present day take so little interest in soil analyses? It is partly due to the too prevalent belief that soil analyses are not of much use. But it is far more largely due to the fact that when a farmer gets an analysis the figures often convey to him very little information. If the author could have taken these analyses and gone through each one, item by item, showing what each figure indicated and what value it possessed, and in this way had compared the various analyses, his book would have been of infinitely more value to the farmer.

The treatment of manures is, so far as it goes, clear and accurate. It contains a very full account of the origin and properties of basic slag. It will be a surprise to many to hear that even basic slag is the subject of adulteration. The author says:—

"ADULTERATION OF BASIC SLAG.—Basic slag is very rarely adulterated with chalk or other non-phosphatic ingredients. If the price be fixed—as it generally is—in proportion to the amount of phosphate it contains, such admixture would be a source of loss, not of gain, to the seller. It has, however, occasionally been adulterated to a considerable extent by admixture of finely ground native phosphates. The presence of

these substances is easily detected by microscopic examination. Tricalcic phosphate introduced into the converter along with the raw slag previous to the operation by which Thomas' phosphate is produced cannot be detected in this way. It is doubtful whether phosphates so introduced would be regarded as adulterants. If not converted into basic phosphates, they would remain comparatively insoluble and of lower agricultural value. Purchasers of basic slag would therefore be well advised to obtain a guarantee of the solubility of the phosphates. Many firms now give a guarantee that 80 per cent. of the total phosphate is soluble in dilute citric acid, and others guarantee the actual percentage of phosphate soluble in that reagent. Such phosphate is probably all basic phosphate, and readily available to plants. In purchasing superphosphates, only one thing has to be considered—the percentage of soluble phosphates. In purchasing basic slag, three things should be taken into account:—The percentage of total phosphates, the solubility of the phosphate, and the fineness of the sample. The solubility probably depends, to some extent, upon the fineness, but when the former is guaranteed the latter is of secondary importance."

The only manure which we have not found mentioned in the book is basic superphosphate, and we are rather surprised at this, for the valuable properties of the basic manures is fully recognised by the author. There is also one question in connection with manures which the author has not referred to. Large sums of money are spent in some parts of England upon waste materials, such as shoddy, wool, rape dust or cake, etc., which only contain nitrogen, and the price paid for some of these substances, when compared with the price of other nitrogenous manures, appears far in excess of what they are supposed to be worth for manurial purposes. Is the farmer at fault in using and paying such prices for these substances, or is the agricultural chemist at fault in assuming that they have not the value which the practical farmer from experience assumes them to possess. In other words; do they possess a manurial value over and above that of the nitrogen they contain? The subject is one of considerable interest.

We recommend this book to all interested in the study of manures. It cannot fail to prove of value, and will give rise to many thoughts in the minds of its readers.

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4.—*Dairying and Dairy Farming*. London : W. Speaight & Sons. 5s.

We live in an age of specialists, and if we enjoy the advantages we also suffer from the disadvantages which such an age entails. We get the detailed knowledge in each branch of a subject which only a specialist can acquire, but at the same time we lose that broad grasp of subjects, that insight into relative values, that judicial apportioning of the relative merits of different items of knowledge, which our forefathers particularly aimed at obtaining. We are all intent upon microscopically examining the details of any subject in which we are interested, but very few are capable of climbing to the heights and surveying the whole from a distance. Hence the great difficulty of finding a work upon any large technical branch of knowledge written by one individual which is not to a large extent a repetition of what has already been written by a number of specialists, often strung together by a writer who really has very little first-hand knowledge of the subject about which he writes.

The chief value of this book lies in the fact that the articles it contains are each written by a specialist, by one who has made a special study of the subject about which he writes. These writers are members of the Dairy Students' Union, and their work has been well edited by Mr. J. C. Newsham, F.L.S.

In a few introductory remarks the President of the Union, Mr. F. J. Lloyd, gives the following advice to the members which is applicable to all students :—

“ The first and true educational aim is to train our faculties, those faculties of memory, observation, and thought on which our success in life will ultimately depend. The second object is utilitarian, and aims at imparting definite information or acquiring skill which may be of value in supplying the necessities of life.”

“ Do not be satisfied with the skill which comes from experience or the knowledge to be found in books. Remember the advice to read, mark, learn, and inwardly digest. But do not forget that the process of digestion is invariably associated with the rejection of useless material. Our body performs naturally the process of discrimination between nutriment and waste. Unfortunately our minds have to be trained so to discriminate.”

The articles cover a wide range of subjects relating to dairying both at home and abroad. Mr. R. H. Evens contributes three articles—one “ Notes on Dairy Farming,” another “ Foods and

Feeding," and the third, "Fat in Milk." In the second of these papers the author, treating of the comparative value of feeding stuffs—which a practical farmer ought to be able to estimate for himself, but which he is often unable to—describes how it should be done. He says :—

"To be able to compare the feeding value of two brands of cake, or of any other material used for feeding purposes, is as simple as it is important. The simplest method is to first of all reduce the three feeding constituents to food units. For this purpose the albuminoids and oil are supposed to have  $2\frac{1}{2}$  times the value of carbohydrates. Suppose a decorticated cake is guaranteed to contain 34 per cent. albuminoids, 27 per cent. carbohydrates, and 10 per cent. oil, and that the price is £8 per ton, the unit value of the cake may be found from the following calculation to be 1s. 2d. a unit."

We leave our readers to make this calculation for themselves. Add the oil and albuminoids together, multiply by  $2\frac{1}{2}$ , add the carbohydrates ; this gives the food units of which the £8 is made up.

"The unit value in most cases, when feeding stuffs are at a normal price, varies from 1s. to 1s. 3d. By adopting the former figure it is an easy matter to approximately ascertain the value of any feeding stuff, by simply multiplying the percentage of oil and albuminoids by 2s. 6d. and the carbohydrates by 1s."

In this way the relative price of two cakes of which the composition is known may easily be compared.

Mr. J. W. Tayleur contributes a valuable paper on "Artificial Manures," which goes out of the beaten track in its treatment of the subject, and contains a vast amount of information condensed into a small bulk. A few words on cleanliness, taken from a valuable paper on Commercial Dairying, by the well-known authority, Mr. C. W. Walker Tisdale, deserve to be quoted, for they are certainly confirmed by what has been the sad experience of many :—

"Cleanliness.—Cleansing milk and all utensils is a point of economy perhaps not sufficiently realised in the dairy industry generally. It would be a great advantage if free courses in how to handle milk hygienically were provided, and all who have anything to do with the handling of milk were compelled to undergo such a course. From lack of sufficient care in adopting proper means of ensuring cleanliness some thousands of pounds' worth of milk are annually wasted through decomposition taking place before it is marketed."



It is impossible to draw individual attention to each of the 37 articles which this book contains. Suffice it to say that they treat of all aspects of dairying, both theoretical and practical. Much information is given about dairying abroad for those who wish to travel or think of seeking their fortunes in other lands.

There is a lengthy "Pharmacy Guide for Cattle" which must not be overlooked. Only one fault have we to find with this excellent and valuable little manual, there is no index, and for a work which treats of so many subjects an index is really indispensable. Dairy farmers and students will find this a valuable guide and book of reference.

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5.—*Agriculture*. By W. SOMERVILLE. London: Williams & Norgate. 1s.

This is one of the "Home University Library" books, now being issued by the above named publishers. Some of the preceding volumes have been at once accepted as masterpieces, and we had hoped that this book coming as it does from the Sibthorpe Professor of Rural Economy at Oxford would have taken rank in the same category. We were disappointed. The author states plainly in his Preface: "The object of this volume is to discuss the fundamental principles underlying the practice of agriculture." That being the case the title of the book is a misnomer. It should have been: "The Principles of Agriculture."

A really able work on agriculture such as this might have been greatly needed. We mean a work which will take a broad survey of the whole of the agriculture of the country. These University series are presumably intended for the general reader rather than for the specialist, and the general reader will not require information about the principles of practices when probably he knows nothing of the practices themselves, he will rather be interested in an explanation of what everyone can see yet not explain. For example, how do farmers make a living? Why do some farmers mainly interest themselves in cattle, others in sheep, others in corn, and others in dairy produce? Why is it that as we travel about our country we see hops in Kent or in the West of England, but hardly ever anywhere else? Such are some of the natural questions which arise in the minds of those who, not knowing much about farming or farmers, yet being naturally of an

inquisitive mind, might have bought this book. But not a word does it contain about live stock, which is the most interesting, and to-day the most profitable output of agriculture, not a word about dairy produce, and it has only two chapters, one on the "Rotation of Crops" and the following one on "Seed," which in any way deal with the produce of the soil. But the produce of the soil is the first consideration of the farmer, the first object of all agricultural operations. What precedes this is only preliminary, whether it relates to the cultivation of the soil or its amelioration by manuring. This book, unfortunately, is devoted almost entirely to such preliminary matters. As the author says, "It is, in the main, an introduction to crops and cropping." We should rather call it an introduction to the study of soils and manures, and as such we can commend it. The author understands his subject and how to put it before his readers with a minimum of chemical or technical terms. The following extract gives a good idea of his style :

Having treated of the relation of nitrogen to the soil, and pointed out that the atmosphere consists mainly of nitrogen, he continues :—

"For most plants and all animals, so far as we know, this atmospheric nitrogen is of no direct account, but an exception to this rule is furnished by the leguminosæ, and a few other less important orders, which through the agency of colonies of bacteria that establish themselves in outgrowths (nodules) on the roots, are able to draw upon the supplies of free atmospheric nitrogen. In some way or other, these organisms can evidently lay hold of, and work up into organic compounds, this free nitrogen, and afterwards hand it on to the plants on which the colonies have established themselves. This association of two organisms for the mutual benefit of both is not uncommon amongst plants and animals. In the case we are considering the leguminous plant offers as it were house room to the bacteria, which in return for the accommodation thus provided, convert the free nitrogen into such a form that it can be appropriated by the higher plant.

"Without these colonies of bacteria the leguminosæ are practically as helpless with regard to nitrogen as any other plants. It has been asserted that it is a matter of chance whether any particular leguminous plant shall come into contact in the soil with its appropriate organism, and it has been suggested that fields intended for the growth of a leguminous crop should be "inoculated" with a culture of the organism which can best enter into association with the particular crop

that it is intended to grow. Various so-called cultures have from time to time, during the past ten to fifteen years, been put upon the market, and farmers and gardeners have been led to expect great results from their use. But in practice, or when investigated scientifically by unprejudiced inquirers, such cultures have proved to be of little, if any, account, and at the moment one hears but little of them. While it is certain that leguminous plants cannot attract colonies of bacteria to their roots unless the bacteria are present in the soil, it would appear that practically all soils contain the necessary organism in abundance, and that the addition of further supplies is unnecessary. It has also been alleged that each leguminous plant can only associate itself with its own particular organism, or with one that is very closely allied. It is maintained for instance, that nearly-related leguminous plants such as white and alsyke clovers, are capable of attracting the same variety of organism, whereas species standing wide apart, like beans and medick, have no mutual interest in any particular organism. But common observation will furnish evidence that this cannot always be the case. In the Weald of Surrey, for example, it is the rarest thing to find broom or lucerne, and we should therefore be asked to assume that the organisms on the roots of these plants cannot naturally be present in such soils, so that, should any attempt be made to cultivate these plants, successful growth is not to be looked for. But if the seed of broom or lucerne be sowed in the Weald it will be found that the resulting plants at once provide themselves with abundance of nodules, and grow vigorously. One must therefore conclude that leguminous plants generally find in the soil bacteria which are capable of entering into association with a wide range of plants, and of immediately forming colonies on species, and even genera, that they can never previously have encountered."

While we regret the limited scope which the author set himself, we fully recognise the merits of his treatment of the subject. The book in fact is a wonderful shilling's worth, which can be carried in the pocket and will afford useful reading for odd moments to the student of agriculture.

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6.—*The Everyman Encyclopædia.* London: J. M. Dent & Sons.  
1st Vol. 1s.

The extremely cheap literature characteristic of the present day has had two striking effects upon the character of the people. It enables us to read too much, so that we obliterate the impression of one subject by immediately super-imposing another: thus we have impaired our powers of memory. Secondly, while we try to know a little of everything we know nothing well or with certainty. Both these weaknesses will be found even more developed in the younger than in the older members of society at the present day. One of the secondary effects of this indiscriminate reading is that we come across a multitude of words relating to many subjects of which we know but little, and having no time to study them we seek for some condensed information in any book at our disposal. The result has been a remarkable increase in the number of encyclopædias, both large and small, which have recently appeared. The last of these is now being put upon the market in the wonderful series known as the Everyman Library. We should not ordinarily notice a book of this description, but the farmer has moved with the times and has become a much greater reader than his ancestors, hence he, too, needs an encyclopædia in the house. Even the weekly agricultural paper now contains information upon so varied a range of subjects, and uses words so new, that a quite modern dictionary is scarcely sufficient to make the reading entirely understandable.

We purchased this first volume more out of curiosity than from any need of an encyclopædia, but even a casual study of its contents has convinced us that it is well worth the while of every farmer to possess a copy. Naturally the first word we turned to was "Agriculture," and to our surprise we found an article of twenty-four columns admirably written and quite up-to-date. The following extract will give a very fair idea of the ability with which this subject is treated:—

"The nineteenth century witnessed the improvement of crops by means of artificial manures, dung and various forms of rubbish being the only kinds of fertiliser previously employed. Bones came first, though Sir Humphrey Davy (lecturing 1802-12) also mentions phosphate of lime, sulphate of potash, and salts of magnesia. Nitrate of soda and guano were first imported 1830; superphosphate resulted from the researches of Lawes and Leibig, and began to be used on a large scale in the early forties; potash manures prepared from the Stassfurt

deposits, came later, and were followed by the discovery of basic slag. The improvement of wheat by crossing was commenced by Knight towards the end of the eighteenth century, and taken up by Maund much later; while Shirreff began to improve cereals by selection in 1819, a variation of his method being subsequently practised by Hallett (1857). Practically all kinds of crop plants were improved on similar lines. During the nineteenth century also the necessity of using clean seed—first realised in Denmark—was increasingly recognised, and thanks to the pioneer work of Messrs. Sutton (who have also played a prominent part in the production of new strains of cultivated plants), followed by many others, the average seed placed upon the market attained a high degree of purity and germinating power. The implements of tillage were still further improved, reaping machines and other contrivances for harvesting and after-treatment of crops were evolved in profusion, and different forms of power employed for working many of them. During the century great advances were also made in the knowledge and treatment of plant diseases, especially those due to the attacks of parasitic organisms. The rapid improvement in biological appliances (especially microscopes), and technique not only placed the study of injurious fungi on a scientific footing, but also enabled the science of bacteriology to be created, largely as a result of the pioneer work of Pasteur. Bacteria were found not only to be agents of infectious disease but also to play an important part in the chemical changes which go on in the soil, in dairy processes, and so forth. Equally, valuable progress was also made in respect of live stock. Many breeds were improved or established on Bakewell's lines, and the formation of numerous breed societies in the latter part of the century secured the maintenance of high standards. The biological advances above mentioned enabled great improvement in the treatment of animal diseases, while at the same time the importance of farm hygiene came to be realised. Artificial foods of which linseed cake was the first (1795), gradually came to play an important part in winter feeding and the promotion of early maturity. Gilbert in England and von Wolff in Germany, with many others, placed the feeding of stock on a scientific foundation. The invention of the cream separator proved of great importance in the improvement of dairy work. Agriculture has continued to make considerable advances during the present century on all the lines indicated. The application of Mendelian principles to the breeding of plants

and animals, especially the former, is leading to considerable results, as in the production of rust-resisting wheats by Biffen, improved cereals, etc., at Svalof, and so forth. Further progress in research, horse breeding and education are assured by the establishment of a Development Fund. But although British Agriculture has made enormous strides during the last hundred years, the same is true for rival countries, and the British farmer is hampered by scarcity of labour, and still more by increasing competition with our overseas dominions and with foreign States, greatly facilitated by rapid transit and cold storage. The outcome of the policy of breaking-up estates for creation of small holdings is doubtful ; success can only be assured by a complete system of co-operation. The question of Free Trade *versus* Tariff Reform also remains to be fought out, and the result is not at present to be foreseen."

The encyclopædia will be complete in twelve parts, and thus cost the remarkably small sum of 12s. only. Of course it is not a cyclopædia of Agriculture, and gives only the briefest explanations of many words in which agriculturists are mainly interested. Those who can afford more complete works, especially intended for agriculturists, will obtain what they require in the "Standard Cyclopædia of Modern Agriculture," published by the Gresham Publishing Company, or the "Encyclopædia of Agriculture," published by Messrs. Wm. Green & Sons, both of which have been fully noticed in past volumes of this Journal. But for those who cannot afford the more special works, this remarkably cheap publication will be a boon, if future volumes come up to the high standard of this first volume.

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7.—*Fertilisers as an Aid to Profitable Farming.* By G. C. ARNOTT,  
London: McGlashan, Gregory & Co. 3d.

This pamphlet is divided into two parts, the first dealing with the elements of plant food, their functions and effects, and the second with an epitome of the results of experiments on the manuring of the principal farm crops.

The author's object is "to assist those engaged in Agriculture in the selection of suitable methods of manuring so that they may obtain the most profitable returns from their land," for, as he truly says, "artificial manures must be used intelligently to secure the most economical results."

The first step towards the intelligent use of anything is to understand it, that is, in the case of a manure, to know what constituents it contains, in what form those constituents exist, and what effect they have on plants. To supply this information is the main object of the author in the first section of his little work. In clear, concise, sentences he compresses a large amount of accurate information, and the following short extract is a fair type of his treatment of subjects:—

"Phosphates are indispensable for successful farming. They are a necessity for the healthy development of all plants and animals. Phosphates are constantly being removed from the land . . . therefore they must be replaced liberally if the crops and animals are not to suffer."

"Phosphates not only appreciably hasten ripening, which is of such vital importance, especially in wet seasons, but in the case of cereals they increase the yield and proportion of grain, and promote a stiffer straw, so that the crops are less liable to lodge."

"Furthermore, phosphates play a most important part in the early development and root growth of young plants."

"The three kinds of Phosphates best known in agriculture are: Insoluble phosphate, citric soluble phosphate, water-soluble phosphate."

In such wise does the author treat of the other essential constituents of manures, i.e., nitrogen, potash and lime, and of the various forms in which these are put upon the market.

He next has some remarks upon the purchase of manures, and says:—

"Notwithstanding the educational efforts that have been put forth by agricultural societies and others . . . the sale of

fertilisers containing extremely low percentages of phosphates and nitrogen at prices far beyond the commercial value of the plant food supplied, appears to flourish as much as ever. There is no excuse for this in these days."

In the second part the author takes the more important crops—wheat, barley, oats, swedes, mangels, and potatoes, one by one, and gives a resumé of the latest experiments, showing for each crop what manures have given the best results. An immense amount of work is concentrated into these forty pages, which embody the results of vast numbers of experiments conducted by different investigators in many localities and at various times. These results were originally contained in reports which are not easily obtainable now, and an epitome of which is of great practical value. The book is a wonderful threepenny-worth.

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# Bath and West and Southern Counties Society.

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## BATH MEETING, 1912.

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### JUDGES:

#### HORSES.

**Agricultural.** J. T. C. EADIE, The Rock, Newton Solney, Burton-on-Trent.

**Hunters.**—R. C. FORSTER, Vasterne Manor, Wootton Bassett.

**Hackneys.**—C. E. E. COOKE, Bygrave, near Baldock, Herts.

**Ponies.**—C. M. PRIOR, Adstock Manor, Winslow, Bucks.

**Harness.**—C. E. E. COOKE, Bygrave, near Baldock, Herts.

**Jumping.**—R. C. FORSTER, Vasterne Manor, Wootton Bassett.

#### CATTLE.

**Devon.**—E. C. NORRISH, Hillsleigh, Instow, North Devon.

**South Devon.**—J. COAKER, Blagdon Barton, Paignton.

**Shorthorn and Dairy.**—W. CROSLAND, The Grange, Eaton Hastings, Faringdon.

**Hereford.**—JAMES EDWARDS, Broadward, Leominster.

**Sussex.**—D. SWAFFER, Mumford, Kingsnorth, Ashford, Kent.

**Aberdeen Angus.**—H. BLAND, Blandsfort, Abbeyleix, Ireland.

**Jersey.**—E. MATHEWS, Little Shardeloes, Amersham, Bucks.

**Guernsey.**—W. TRERISE RICHARDS, Godolphin House, Breage, Cornwall.

**Kerry and Dexter.**—Colonel W. STALLARD, St. John's House, Worcester.

**Butter Tests.**—E. MATHEWS, Little Shardeloes, Amersham, Bucks.

**Dairy Herds.**—R. STRATTON, The Duffryn, Newport, Mon.

#### SHEEP.

**Cotswold.**—DAVIS BROWN, Marham Hall, Downham Market, Norfolk.

**Devon Longwoolled.**—J. H. GIBBINGS, Week Barton, North Tawton, Devon.

**South Devon.**—J. W. HALLETT, Matford, Alphington, Exeter.

**Kent or Romney Marsh.**—H. RIGDEN, Etchinghill, Lyminge, Kent.

**SHEEP**—*continued.*

**Southdown.**—H. SENIOR, Heatherlands, Colehill, Wimborne, Dorset.

**Hampshire Down.**—E. J. BENNETT, Chilmark, Salisbury.

**Shropshire.**—T. S. MINTON, Montford, Shrewsbury.

**Oxford Down.**—H. OVERMAN, Kipton House, Weasenham, Swaffham, Norfolk.

**Dorset Down.**—A. O. Symes, Kingston Russell, near Dorchester, Dorset.

**Dorset Horn.**—J. H. CHICK, Wynford Eagle, Dorchester, Dorset.

**Exmoor Horn.**—W. HARDING, Millbrook, North Molton, Devon.

**PIGS.**

**Berkshire.**—A. S. GIBSON, Coldham House, Elm, Wisbech.

**Large Black.**—R. B. BOND, The Red House, Sproughton, Ipswich.

**Large and Middle White and Tamworth.**—COLONEL F. A. WALKER JONES, Manor House, Burton, Westmoreland.

**Any Breed.**—J. M. HARRIS, Chilvester Lodge, Calne.

**POULTRY.**

T. C. HEATH, Keele, Newcastle, Staffordshire ; and

W. SMITH LAMBERT, Harlow Court Farm, Horrogate.

**PRODUCE.**

**Cider.**—J. ETTLE, F.R.H.S., 37, Stanley Grove, Weston-super-Mare.

**Cheese.**—G. F. BUTCHER, Hillside, Greenway Lane, Bath.

**Cream Cheese, Butter and Cream.**—MILES BENSON, British Dairy Institute, Reading.

**COMPETITIONS.**

**Butter-making.**—MILES BENSON, British Dairy Institute, Reading ; and B. READ, Church Farm, Cam, Dursley.

**Milking.**—H. HILL, Manor Farm, Paulton, Bristol.

**Shoing.**—GEORGE P. MALE, M.R.C.V.S., Friar Street, Reading.

**FORESTRY.**

**Forestry.**—G. MARSHALL, Estate Office, Godalming.

## PRIZE AWARDS, 1912.

\*.\* An animal designated in this list as the "reserve number" is entitled, *conditionally*, to succeed to any prize that may become vacant in its class by reason of the animal placed above it by the Judges failing afterwards to qualify.

† Animals, where not otherwise stated, may be considered to have been bred by the Exhibitor.

ABBREVIATIONS EXPLAINED :—S., sire; d., dam; s. d., sire of dam; y., year; m., month; w., week; d., day; R., Reserve; V.H.C., Very Highly Commended; H.C., Highly Commended; C., Commended.

## HORSES.

## SHIRE.

(Registered or eligible for registration in the Shire Horse Society's Stud Book).

CLASS 1.—*Shire Stallion, foaled before 1910.* [3 entries.]

**I. (£15.)**—E. J. WYTHES, Copped Hall, Epping, Essex, bay, **Southrey Harold**, foaled 1908, bred by J. and T. Smithson, Southery, Lines.; s Ashwell Capstone (23009), d Maulden Lady Bedford 3rd (33055), s d Downham Ben (12992).

**II. (£10.)**—F. E. MUNTZ, Umberslade, Hockley Heath, Warwickshire, brown, **General of Hothfield**, foaled 1906, bred by Lord Hothfield, Hothfield Place, Ashford, Kent; s Hutton Victor Chief (19711), d Cocoa of Hothfield (41444), s d Yule Log of Hothfield (18463).

**III. (Bronze Medal.)**—W. AND H. WHITLEY, Primley Farm, Paignton, bay, **Primley Benefactor** (28600), foaled 1909, bred by W. T. Beard, Bollington, Macclesfield; s Tatton Dray King (23777), d Birdsall Doris (40953), s d Menestrel (14150).

CLASS 2.—*Shire Stallion, foaled in 1910.* [8 entries.]

**I. (£15.)**—SIR E. STERN, Fan Court, Chertsey, Surrey, bay, **Victor King** (29984), bred by the late W. Richardson, Doddington, Cambs.; s Normoor Forest King (25500), d Rostherne Belle (43155), s d Bury Victor Chief (11105).

**II. (£10.)**—R. H. KEENE, Westfield, Medmenham, bay, **Primrose Champion**; s Pendley Champion, d Blagdon Feathers, s d Cromwell of Worsley.

**III. (£3.)**—E. J. WYTHES, Copped Hall, Epping, Essex, brown, **Forage Gay King**, bred by A. H. Fermbough, Earlswood, Birmingham; s King Forest (24347), d Chipping Gay Lass (53433), s d Savernake Squire (20011).

**R.**—R. COOK, Wormwood, Box, Wilts, bay, **Yatesbury Speculation** (30053), bred by W. Arkell, Kempford, Fairford, Glos.; s Kempsford Jameson (25313), d Bradwell Tulip (44334), s d Buscot Primate (17224).

**CLASS 3.—Shire Colt, foaled in 1911. [7 entries.]**

**I. (£15).**—LORD ROTHSCHILD, Tring Park, Tring, Herts, brown, **Rickford Carbon** (Vol. xxxiii.), bred by the Executors of the late Lord Winterstoke, Coombe Lodge, Blagdon, Bristol; s King Cole VII (26351), d Rickford Forest Queen (58138), Vol. xxx.), s d Dodford Spark (23245).

**II. (£10).**—F. E. MUNTZ, Umberslade, Hockley Heath, Warwickshire, bay, **Peak Romancer**, bred by R. Whitehead, Hargate Hall, Miller's Dale; s New Cut Harold 2nd (25486), d Tell Tale (52417), s d Birdsall Menestrel (19337).

**III. (£3).**—W. AND H. WHITLEY, Primley Farm, Paignton, black, **Primley Draughtsman** (Vol. xxxiv.); s Tatton Dray King (23777), d Quality (46043), s d Dunsmore Jameson (17972).

**R.**—R. H. KEENE, Medmenham, Marlow, brown, **Longforth King Cole**, bred by W. Buncombe, Longforth, Wellington, Somerset; s King Cole 7th (26351), d Longforth Maggie (51578), s d Blythwood Kingmaker (18534).

**H.C.**—H. OAKLEY, Dewstow, near Newport, Mon., brown, **Dewstow Wonder**; s Dewstow Chancellor (22288), d Cyclamen (25181), s d Harold.

**SPECIAL PRIZE.**

GIVEN BY THE SOMERSET COUNTY AGRICULTURAL ASSOCIATION.

*Best Shire Stallion or Colt foaled in 1910 or 1911, the property of a resident in the County of Somerset—£10.*

**I.**—T. DIBBLE, Bagboro, Taunton, brown; s King Cole 7th (26351), d Dunsmore Patty, s d Dunsmore Masterman (12874).

**CLASS 4.—Shire Mare in-Foal or with Foal at foot. [5 entries.]**

**I. (£15).**—W. AND H. WHITLEY, Primley Farm, Paignton, bay, **Mollington Movement** (48793), foaled 1904, bred by C. E. Bruce Fry, Mollington, Banbury, Oxon; s Lockinge Forest King (18867), d Cattothorpe Malmaison (16389), s d Cronton Magna Charta (9165); with foal by Primley Bellivor (28679).

**II. (£10).**—SIR E. STERN, Fan Court, Chertsey, Surrey, brown, **Lockinge Forest Daisy** (54505), foaled 1906, bred by Lady Wantage, Lockinge, Wantage; s Lockinge Forester (17777), d Kelvedon Marguerite (26253), s d Curf Duncan (15070).

**CLASS 5.—Shire Filly or Gelding, foaled in 1911. [13 entries.]**

**I. (£10).**—LORD ROTHSCHILD, Tring Park, Tring, Herts, bay filly, **Rickford Gem** (Vol. xxxiii.), bred by the Executors of the late Lord Winterstoke, Coombe Lodge, Blagdon, Bristol; s King Cole 7th (26351), d Rickford Dazzle (61641, Vol. xxxi.), s d Childwick Champion (22215).

**II. (£5).**—LORD POLTIMORE, Poltimore Park, Exeter, bay filly, **Tandridge Choice** (Vol. xxxiv.), bred by M. Michaelis, Tandridge Court, Oxted; s Shamrock of Tandridge (25620), d Pailton Sorais (45919), s d Lockinge Forest King (18867).

**III. (£3.)**—SIR E. STERN, Fan Court, Chertsey, Surrey, black mare, **Queen May** (Vol. xxxiv.), s Danesfield Stonewall (23214), d Buscot Fantasy (47384), s d Conqueror of Waresley (15909).

**R.**—W. AND H. WHITLEY, Primley Farm, Paignton, brown, **Primley Duchess** (Vol. xxxiv.); s Tatton Dray King (23777), d Dunsmore Picturesque (50934), s d Dunsmore Jameson (17972).

**H.C.**—G. COWING, Yatesbury, Calne, Wilts, brown filly, **Yatesbury Dray Queen**; s Tatton Dray King (23777), d Creslow Sunlight (56623), s d Beachenden Royal Harold (19325).

**CLASS 6.—*Shire Filly or Gelding, foaled in 1910. [6 entries.]***

**I. (£10.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, bay filly, **Halstead Duchess 7th** (67223), bred by J. Bradley, Halstead, Tilton, Leicester; s Redlynch Forest King (23626), d Halstead Duchess 6th (54035, Vol. xxix.), s d Menestrel (14180).

**II. (£5.)**—W. AND H. WHITLEY, Primley Farm, Paignton, brown filly, **Primley Carnation** (68228), bred by A. Denniff, Dore Hall Farm, Dore, near Sheffield; s Tatton Dray King (23777), d Tatton Nell Gwynne (43534), s d Markeaton Royal Harold (15225).

**III. (£3.)**—G. COWING, Yatesbury, Calne, brown filly, **Rickford Lady Cole** (68377), bred by J. and W. Bourne, Norton St. Philip, Bath; s King Cole 7th (26351), d Chatley Pansy (59778), s d Redlynch Forester (22713).

**R.**—P. COATS, Sheepcote, Clifford, Herefordshire, black filly, **Clifford Fly**; s Dunsmore Prince 3rd (25162), d Clifford Warble, (59850), s d Sir Ronald (17622).

**H.C.**—LORD POLTIMORE, Poltimore Park, Exeter, brown filly, **Elvira** (66882), bred by His late Majesty King Edward VII.; s Draymen 23rd (19551), d Elveden Daisy (47872), s d Dunsmore Combination (17334).

**CLASS 7.—*Shire Filly or Gelding, foaled in 1909. [2 entries.]***

**I. (£10.)**—W. AND H. WHITLEY, Primley Farm, Paignton, bay mare, **Champion's Queen** (63186), bred by R. E. Jones, The Farm, Pool, Quay, Welshpool; s Childwick Champion (22215), d Lady Normoor (57477), s d Normoor Statesman (18986).

**II. (Silver Medal).**—G. COWING, Yatesbury, Calne, Wilts, brown mare, **Dotford Duchess** (66729), bred by F. Cole, Somerford, Wilts; s Stanton Forest King (23725), d Bonny, s d Cricklade Willow (31527).

**CLASS 8.—*Novice Class. Shire Mare or Gelding, four years old or over, not having won a prize of £5 and upwards up to March 29th, 1912. [3 entries.]***

**I. (£6.)**—SIR E. STERN, Fan Court, Chertsey, Surrey, brown, **Lockinge Forest Daisy** (54505), foaled 1906, bred by Lady Wantage, Lockinge, Wantage; s Lockinge Forester (17777), d Kelvedon Marguerite (26253), s d Curf Duncan (15070).

**II. (24.)**—H. OAKLEY, Dewstow, near Newport, Mon., brown filly, **Southill Star** (61895), foaled 1908, bred by J. King & Sons, Broom, Biggleswade; s Anchorite (16488), d Southill Jet (61890), s d Southill Paxton (20039).

### *SPECIAL PRIZE.*

GIVEN BY THE SOMERSET COUNTY AGRICULTURAL ASSOCIATION.

*Best Shire Mare, Filly, or Filly Foal, foaled in 1909, 1910, or 1911, the property of a resident in the County of Somerset—£10.*

**I.**—E. H. BUNCOMBE, Longforth, Wellington, Somerset, bay filly, **Day Star** (Vol. xxxiv.), bred by His Majesty the King, Sandringham; s Calwich Blend (17226), d Danesfield Dazzle (53565), s d Hendre Hydrometer (18082).

**R.**—W. R. JAMES, Rookery Farm, Binegar, Bath, bay filly, **Dauntsey Forest Fashion** (66644), bred by E. F. Pollen, Middle Green Farm, Dauntsey, Chippenham; s Stanton Forest King (23725), d Stanton Dolly (46348), s d Major (13934).

### *SPECIAL PRIZE.*

GIVEN BY THE SHIRE HORSE SOCIETY.

*A Gold Medal, or the sum of £10 for the best Mare or Filly in the Shire Horse Classes, under Condition 48, and to the breeder of the winner under the Conditions stated, a prize of £5.*

**I.**—LORD ROTHSCHILD, Tring Park, Tring, Herts, bay filly, **Halstead Duchess 7th** (67223), bred by J. Bradley, Halstead, Tilton, Leicester; s Redlynch Forest King (23626), d Halstead Duchess 6th (54035) Vol. xxix, s d Menestrel (14180).

**R.**—W. AND H. WHITLEY, Primley Farm, Paignton, bay, **Mollington Movement** (48793), foaled 1904, bred by C. E. Bruce Fry, Mollington, Banbury, Oxon; s Lockinge Forest King (18867), d Catthorpe Malmaison (16389), s d Cronton Magna Charta (9165); with foal by Primley Bellivor (28679).

### *HUNTERS.*

**CLASS 9.**—*Hunter Mare, in-Foal, or with Foal at foot.* [5 entries.]

**I. (215.)**—E. W. ROBINSON, Liscombe, Leighton Buzzard, Beds., brown, **Vademecum**, foaled 1903, bred by R. Dormes; s Hackler, d Verily, s d Stylites; with foal by Common.

**II. (210.)**—W. AND H. WHITLEY, Primley Farm, Paignton, black brown; **Glowworm** (3885), foaled 1898, bred by J. Irwin, Pallas, Kilmeady, Limerick; s Traverser 2nd, s d Hercules.

**III. (Bronze Medal).**—MRS. H. D. GREENE, Grove, Craven Arms, R.S.O., Shropshire, bay, **Lady Tacitus** (2607), foaled 1900, bred by R. C. Carden, Carraig na Creina, Co. Dublin; s Tacitus, d Lady Clare (2175), s d Walter; with foal by Red Sahib.

# SPECIAL PRIZE.

GIVEN BY THE HUNTERS' IMPROVEMENT SOCIETY, UNDER  
CONDITION 49.

*A Gold Medal, or £5 and a Bronze Medal, for the best Hunter Brood Mare in Class 9, ACTUALLY registered with a number in the Hunter Stud Book at the time of the award, not having previously won the Hunters' Improvement Society's Gold Medal as a Brood Mare in 1912, and which must produce a living foal in 1912, or have her foal at foot. In the first instance a certificate to that effect must be forwarded before the Medal is sent. Only prize-winners in the class were eligible for the Medal.*

**I.**—E. W. ROBINSON, Liscombe, Leighton, Buzzard, Beds., brown, **Vademecum**, foaled 1903, bred by R. Dormes ; s Hackler, d Verily, s d Stylites ; with foal by Common.

**R.**—W. AND H. WHITLEY, Primley Farm, Paignton, black brown, **Glowworm** (3885), foaled 1893, bred by J. Irwin, Pallas, Kilmeady, Limerick ; s Traverser 2nd, s d Hercules.

**CLASS 10.**—*Hunter Filly, Colt, or Gelding, foaled in 1911. [10 entries.]*

**I. (£10.)**—J. L. NICKISSON, Hinton Manor, Swindon, chestnut filly, **Red Squaw** ; s Red Sahib, d Sister Anne, s d Pantomime.

**II. (£5.)**—E. W. ROBINSON, Liscombe, Leighton Buzzard, Beds, brown colt, **Battledor**, bred by J. C. Metcalfe, King Edward's Place ; s Battlement, d Maud Emily.

**III. (£3.)**—J. J. E. FARQUHARSON, Sutton Bingham, Yeovil, Somerset, chestnut colt, **Robin R.**, bred by W. Corry, Over Compton, Sherborne, Dorset ; s Battlement, d Alice R, s d Glory Smitten.

**R.**—MRS. A. R. POOLE, King's Hill, Dursley, brown filly, **Psyche** ; s Battlement, d Pamela, s d Pantomime.

**H.C.**—S. CODRINGTON, M.R.C.V.S., Chipping Sodbury, chestnut colt, **Past Master** ; s The Chair (Vol. xx, p. 369), d Flower Girl (4310 H.S.B.), s d Passion Flower.

**C.**—G. E. ROBERTS, Oakfield, Chester, chestnut filly ; s Yentoi.—J. H. WATSON, Green Hill, Kidderminster, bay gelding, **Conundrum**, bred by R. Cottrill, Sandal Lodge, Droitwich ; s Snowflake, d Castaway 2nd.

**CLASS 11.**—*Hunter Filly or Gelding, foaled in 1910. [7 entries.]*

**I. (£10.)**—MISS E. L. CLAY, Piercefield Park, Chepstow, bay gelding, **Sir Charles**, bred by C. B. Knight, Slough Farm, Chepstow ; s St. Pancras, d Circus Girl, s d Lodge.

**II. (£5.)**—COL. F. HENRY, Elmtree, Tetbury, Glos., brown gelding, **Caruso** bred by J. Gould, Chescomb, Chipping Sodbury ; s Thistledown.

**III. (£3.)**—T. L. BENNETT, Cross Hands Farm, Chipping Sodbury, bay gelding, **Arm Chair** : s The Chair, d Bird Call, s d Roll Call.

**R.**—W. G. BUSK, Wraxall, Cattistock, Dorset, bay filly, **Delight** (4671, H.S.B.) ; s Kano (Vol. xx, p. 702), d Duchess of Connaught (527).

**H.C.**—J. L. NICKISSON, Hinton Manor, Swindon, bay filly, **Redwing 3rd** ; s Red Sahib, d Matabele, s d Basuto.

**CLASS 12.—*Hunter Filly or Gelding, foaled in 1909.* [6 entries.]**

**I. (£15.)**—MRS. A. J. WALMSLEY, The Priory, Tetbury, bay gelding, **Concussion** ; s Percussion, d Caerwent, s d Lodge.

**II. (£10.)**—J. A. JONES, M.F.H., Ombersley, Droitwich, chestnut gelding, **Durbar** ; s H.R.H.

**III. (£3.)**—P. C. THOMAS, Castle Green, Taunton, bay gelding, **Kirkham**, bred by F. Parker, Woodhouse, Kirkham Abbey ; s Otus, d Norah, s d Walmsgate.

**CLASS 13.—*Hunter Mare or Gelding, foaled in 1908.* [6 entries.]**

**I. (£15.)**—J. H. STOKES, Great Bowden, Market Harboro', bay gelding, **Old Squire**, bred by — Everest, Alexton, Uppingham ; s Blankney.

**II. (£10.)**—T. L. BENNETT, Cross Hands Farm, Chipping Sodbury, bay gelding, **Anderson**, bred by T. Widger, Waterford, Ireland ; s The Gunner, d Skinner, s d Asectic.

**III. (£3.)**—C. E. WILSON, Kingshand, Hurstpierpoint, Sussex, chestnut gelding ; s Crackenthorpe.

**R.**—P. C. THOMAS, Castle Green, Taunton, chestnut gelding, **Foxglove**, bred by — Humphries, Bella Farm, Warham, Malton ; s Wales.

**CLASS 14.—*Hunter Mare or Gelding, foaled before 1908.* [9 entries.]**

**I. (£15.)**—W. J. TATEM, The Court, St. Fagans, near Cardiff, brown gelding, **Pen-y-lan Huntsman**, foaled 1907, bred by J. Day, Huxham, Shepton Mallet ; s Pantomime.

**II. (£10.)**—J. H. STOKES, Great Bowden, Market Harboro', black gelding, **Black Knight**, foaled 1906.

**III. (£3.)**—J. DEARDEN, Haycombe Farm, Sutton Veney, bay gelding **Bardsley**, foaled 1906, bred by P. Fitzgerald, Glenmore, Co. Kilkenny ; s Young Savoyard, s d Passion Flower.

**R.**—P. C. THOMAS, Castle Green, Taunton, bay gelding, **Pioneer**, foaled 1907.

**CLASS 15.—*Novice Class. Hunter Mare or Gelding, four years old or over, not having won a prize of £5 and upwards up to March 29th, 1912.* [6 entries.]**

**I. (£6.)**—P. C. THOMAS, Castle Green, Taunton, chestnut gelding, **Foxglove**, bred by — Humphries, Bella Farm, Warham, Malton ; s Wales.

**II. (£4.)**—P. C. THOMAS, bay gelding, **Pioneer**, foaled 1907.



**III. (22.)**—MISS E. L. CLAY, Piercefield Park, Chepstow, chestnut gelding, **Banwell**, foaled 1907.

**R.**—H. DYSON, The Old Priory, Charter Ley, Basingstoke, bay mare, **Chance**, foaled 1907; s Cromwell (Vol. xvii, p. 405 G.S.B.).

### SPECIAL PRIZES.

GIVEN BY THE SOMERSET COUNTY AGRICULTURAL ASSOCIATION.

*Best Heavy or Light Weight Hunter in Classes 9 to 15, foaled since January 1st, 1906, and bred in the County of Somerset (breeder's certificate must accompany the form of entry).*

**I.**—W. J. TATEM, The Court, St. Fagans, near Cardiff, brown gelding, **Pen-y-lan Huntsman**, foaled 1907, bred by J. Day, Huxham, Shepton Mallet; s Pantomime.

**R.**—R. HUTCHINGS, Rhode Farm, Bridgwater, chestnut gelding, **Primus**, foaled May, bred by — Gooding, Weston Zoyland, Bridgwater; s d Remus.

GIVEN BY THE HUNTERS' IMPROVEMENT SOCIETY, UNDER  
CONDITION 49.

*A Silver Medal or £1 (at the option of the winner), for the best Hunter Mare or Gelding of any age, exhibited by a member of the Hunters' Improvement Society at the time of the award. Only prize-winners in the Classes were eligible for the medal.*

**I.**—MISS E. L. CLAY, Piercefield Park, Chepstow, bay gelding, **Sir Charles**, bred by C. B. Knight, Slough Farm, Chepstow; s St. Pancras, d Circus Girl, s d Lodge.

**R.**—W. J. TATEM, The Court, St. Fagans, near Cardiff, brown gelding, **Pen-y-lan Huntsman**, foaled 1907, bred by J. Day, Huxham, Shepton Mallet; s Pantomime.

**V.H.C.**—J. L. NICKISSON, Hinton Manor, Swindon, chestnut filly, **Red Squaw**; s Red Sahib, d Sister Anne, s d Pantomime.

### HACKNEYS.

(Registered or eligible for registration in the Hackney Horse Society's Stud Book).

**CLASS 16.**—*Hackney Mare, in-Foal, or with Foal at foot.* [2 entries.]

**I. (£15.)**—F. J. BATCHELOR, Hopwood, Alvechurch, Worcestershire, dark chestnut, **Beckingham Lady Gover** (18902), foaled 1906, bred by R. Turfleet, Beckingham, Gainsboro'; s Beckingham Squire (8070), d Beckingham Lady Helmsley (14919), s d Garton Duke of Connaught (3009); with foal.

**II. (Silver Medal).**—R. A. DE MANCHA, Waterside Stud, Frogmore, St. Albans, Herts, chestnut, **Bashful Kate** (14914), foaled 1901, bred by J. Harrison, Garton-on-the-Wolds; s Rosador (4964), d Modest Kate (5882), s d Rufus (1343); with foal.

**CLASS 17.—Hackney Filly, Colt, or Gelding, foaled in 1911.**

[1 entry.]

**I. (210.)**—R. A. DE MANCHA, Waterside Stud, Frogmore, St. Albans, Herts, bay filly, **Ver Princess Rufus** ; s Ver Rufus (10474), d Princess Dagmar (4590), s d Danegelt (174).

**CLASS 18.—Hackney Filly or Gelding, foaled in 1910. [2 entries.]**

**I. (210.)**—R. H. SAMPSON, J.P., Bryngwili, Pontardulais, South Wales, chestnut filly, **Bryngwili Flashlight** (H.S.B. 21900) ; s Flash Cadet (H.S.B. 10203), d Princess Pauline (18511), s d Polonius (4931).

**II. (Silver Medal).**—R. A. DE MANCHA, Waterside Stud, Frogmore, St. Albans, Herts, chestnut filly, **Ver Polite Kate** (22269) ; s Polonius (4931), d Bashful Kate (14914), s d Rosador (4964).

**CLASS 19.—Hackney Mare or Gelding, foaled in 1908 or 1909.**

[2 entries.]

**I. (210.)**—F. J. BATCHELOR, Hopwood, Alvechurch, Worcestershire, chestnut mare, **Airiel Queen** (20472), foaled 1908, bred by R. P. Evans, Woodhatch, Reigate ; s Polonius (4931), d Julius (11929), s d Dayenham (4214).

**SPECIAL PRIZE.**

GIVEN BY THE HACKNEY HORSE SOCIETY, UNDER CONDITION 51.

*A Silver Medal for the best Mare or Filly exhibited in Classes 16 to 19.*

**I.**—F. J. BATCHELOR, Hopwood, Alvechurch, Worcestershire, dark chestnut, **Beckingham Lady Gover** (18902), foaled 1906, bred by R. Turfleet, Beckingham, Gainsboro' ; s Beckingham Squire (8070), d Buckingham Lady Helmsley (14919), s d Garton Duke of Connaught (3009) ; with foal.

**R.**—F. J. BATCHELOR, chestnut mare, **Airiel Queen** (20472), foaled 1908, bred by R. P. Evans, Woodhatch, Reigate ; s Polonius (4931), d Julius (11929), s d Dayenham (4214).

**PONIES.**

(Of the Prizes given in Classes 20 to 23. £12 was contributed by Viscount Tredegar).

**CLASS 20.—Stallion, not exceeding 15 hands, suitable to get Polo or Riding Ponies. [5 entries.]**

**I. (26.)**—THE KEYNSHAM STUD CO., LTD., Keynsham, near Bristol, dark chestnut, **White Wings** (464), foaled 1906, bred by the Radnorshire Polo and Riding Pony Co., Ltd., Bleddfa, Llangunllo, R.S.O., Radnorshire ; s White Mask (190), d First Flight (615), s d Balquihidar.

**II. (24.)**—SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, bay, **Arthur D.**, foaled 1908, bred by R. Botterill ; s Pride, d Maguay, s d Florentine.

**III. (Bronze Medal).**—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, dark bay, **Cruickshanks** (584 P. & R.P.S.B.), bred by L. A. Beamish, Ashgrove, Queentown, Co. Cork ; s Minstrel (G.S.B.), d Testy (G.S.B.), s d Xenophon (G.S.B.).

**R.**—THE KEYNSHAM STUD CO., LTD., dark bay, **Mountaineer** (416), foaled 1904, bred by the Radnorshire Polo and Riding Pony Co., Ltd., Bleddfa, Llangunllo, R.S.O., Radnorshire ; s Mountain Dew, d Bee's Wing (1154).

**C.**—J. E. W. FLEMING, Chilworth Manor, Romsey, Hants, chestnut, **Vectis** (G.S.B. Vol. xxii, P. & R.P.S.B., Vol. xii, No. 596), foaled 1908 ; s Verulam (1901), d Fruit Girl (1901), s d Meddler (1890).

**CLASS 21.**—*Mare, not exceeding 14.2 hands, suitable to breed Polo or Riding Ponies, in-Foal, or with Foal at foot.* [6 entries.]

**I. (26.)**—SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, bay, **Silver Star**, aged, bred by — Hutchinson ; s Knight of the Laurel, d Hunter ; with foal by Othrae.

**II. (24.)**—SIR J. BARKER, BART., chestnut, **Killarney 2nd**, aged ; in-foal to Othrae.

**III. (22.)**—H. FAUDEL PHILLIPS, Mapleton Stud, Edenbridge, Kent, dark chestnut, **Oh My 2nd** (1000), aged, bred by the Keynsham Stud Co., The Lodge Stud Farm, Keynsham ; s Mootrub (32), d Oh My (425), s d Belgrave (Vol. xiii, p. 39) ; with foal by White Wings.

**R.**—MRS. FAUDEL PHILLIPS, Mapleton Stud, Edenbridge, Kent, grey, **Snowdrift** (270), aged, bred by D. J. Bush, Ford House, South Molton, Devon ; s Scot Guard (Vol. xv., p. 402), d Missie, s d Varmint.

**CLASS 22.**—*Filly, Colt, or Gelding, foaled in 1910, not exceeding 14.1 hands.* [5 entries.]

**I. (26.)** SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, chestnut mare, **Lady Buckingham** ; s Sandiway, d Buckingham.

**II. (24.)**—SIR J. BARKER, BART., brown mare, **Sandigas** ; s Sandiway, d Lady Gascoyn.

**III. (Bronze Medal).**—H. FAUDEL PHILLIPS, Mapleton Stud, Edenbridge, Kent, chestnut colt, **Little White Knight**, foaled 1910 ; s White Wings (464), d Oh My 2nd (1000), s d Mootrub (32).

**R.**—J. E. W. FLEMING, Chilworth Manor, Romsey, Hants, chestnut filly, **Romance 2nd** (P. & R.P.S.B., Supp. 1910) ; s Rajah (P. & R.P.S.B., Vol. x, No. 417), d Wonder (G.S.B., Vol. xix.), s d Isoceles.

**CLASS 23.**—*Filly, Colt, or Gelding, foaled in 1909, not exceeding 14.1½ hands.* [3 entries.]

**I. (26.)**—SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, bay mare, **Ashford** ; s Right Forward, d Ashorne (1563).

**II. (24.)**—SIR J. BARKER, BART., brown gelding, **Rightway** ; s Right Forward d Hawkweed 2nd, s d Inval.

(The Prizes in Class 24 were offered by the Bath Local Committee).

**CLASS 24.**—*Mare or Gelding, not exceeding 14.2 hands, the property of a resident within a radius of eight miles of the Guildhall, Bath.*  
—*First prize, £8—second, £5—third, £3.*

NO ENTRY.

(The First Prize in Class 25 was offered by the Coalowners of Somerset,  
per E. M. Heppell, Esq.

**CLASS 25.**—*Mare or Gelding that has been worked in a Coalpit for not less than six months and up to within 10 days of May 22nd.*—*First prize, £6—second, £4—third, £2.*

NO ENTRY.

### *SPECIAL PRIZES.*

GIVEN BY THE POLO AND RIDING PONY SOCIETY,  
SUBJECT TO CONDITIONS NO. 53.

*A Silver Medal for the best Polo Pony Brood Mare, registered or eligible for registration in the Stud Book.*

**I.**—SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, bay, **Silver Star**, aged, bred by — Hutchinson ; s Knight of the Laurel, d Hunter ; with foal by Othrae.

*A Silver Medal for the best Polo Pony Stallion, registered or eligible for registration in the Stud Book ; or best Polo Pony Entire Colt, entered or eligible for the Supplement, one, two, or three years old.*

**I.**—THE KEYNSHAM STUD CO., LLD., Keynsham, near Bristol, dark chestnut, **White Wings** (464), foaled 1906, bred by the Radnorshire Polo and Riding Pony Co., Ltd., Bleddfa, Llangunllo, R.S.O., Radnorshire ; s White Mask (190), d First Flight (615), s d Balquihidar.

**R.**—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, dark bay, **Cruickshanks** (584 P. & R.P.S.B.), bred by L. A. Beamish, Ashgrove, Queentown, Co. Cork ; s Minstrel (G.S.B.), d Testy (G.S.B.), s d Xenophon (G.S.B.).

*A Bronze Medal for the best Foal, entered or eligible for the Supplement.*

**I.**—SIR J. BARKER, BART., The Grange, Bishops Stortford, Herts, bay, **Silver Star**, aged, bred by — Hutchinson ; s Knight of the Laurel, d Hunter ; with foal by Othrae.

## HARNESS AND JUMPING CLASSES.

### HARNESS.

CLASS 26.—*Mare or Gelding, not over 14.2 hands, driven in harness on the first day of the Show.* [7 entries.]

**I. (£10.)**—W. FOSTER, Mel Valley, Moseley, Worcestershire, bay gelding, **Mel Valley's Flame**, bred by W. Cliff, Melbourne Hall, York; s Royal Success, d Wortebly Belle, s d Sir Horace.

**II. (£5.)**—C. RADCLIFFE, 19, Newport, Road, Cardiff, chestnut mare, **Peterstone Pearl** (19421), foaled 1906; s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513).

**III. (£2.)**—D. REES JONES, Penbryn Stud, Aberdare, Glam., bay mare, 7y, **Bromley Belle** (18964), bred by M. Prentice, Carolside, Uddingston, N.B.; s Sir Horace (5402), d Terrington Floweret (13970), s d Caxton (2398).

**R.**—C. RADCLIFFE, chestnut mare, **Peterstone Princess** (20938), foaled 1906; s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513).

**H.C.**—MRS. T. GLENCROSS, The Loose Box, Weston-super-Mare, bay gelding, **Action Again**.

(The Prizes in Class 27 were given by the Bath Local Committee).

CLASS 27.—*Tandems (Mares and Geldings), driven in harness on the first day of the Show.* [2 entries.]

**I. (£10.)**—C. RADCLIFFE, 19, Newport Road, Cardiff, chestnut mare, **Peterstone Pearl** (19421), foaled 1906; s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513); and chestnut mare, **Peterstone Princess** (20938), foaled 1906; s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513).

**II. (£5.)**—HON. MRS. BATHURST, Lydney Park, Glos., chestnut gelding, **Lydney Forest Prince** (10311), foaled 1906; s His Majesty (2513), d Lady Ulrica (4204), s d Rufus (1343); and dark chestnut mare, **Ewell Marion** (15767), foaled 1902, bred by W. Oppenheimer, Ewell Castle, Ewell, Surrey; s Garton Duke of Connaught (3009), d Maid Marion (751), s d Lord Derby 2nd (417).

CLASS 28.—*Mare or Gelding, 15 hands or over, driven in harness on the second day of the Show.* [9 entries.]

**I. (£10.)**—J. KERR, Loudwater, Rickmansworth, Herts, bay gelding, **Loudwater Star**, 5y.; s Aquinus, s d Troubadour.

**II. (£5.)**—RICHARDS & CO., 6, Silver Street, Yeovil, brown gelding, **Red Hill King**.

**III. (£2.)**—F. J. BATCHELOR, Hopwood, Alvechurch, Worcestershire, chestnut mare, **Ariel Queen** (20472), foaled 1908, bred by R. P. Evans, Woodhatch, Reigate; s Polonius (4931), d Julius (11929), s d Dayenham (4214).

**R.**—MRS. T. GLENCROSS, The Loose Box, Weston-super-Mare, chestnut gelding, **Young Squire**.

**C.**—HON. MRS. BATHURST, Lydney Park, Glos., chestnut gelding, **Lydney Forest Prince** (10311), foaled 1906 : s Mis Majesty (2513), d Lady Ulrica (4204), s d Rufus (1343).—MRS. C. E. WAY, Bradpole, Chester, black mare, **Huntington Topsy** (19998 H.S.B.), foaled 1903, bred by H. Jones, Huntington, Chester ; s Rowton Merrylegs (6883 H.S.B.), d Flirt, by High Sheriff (4810 H.S.B.).

(The Prizes in Class 29 were given by the Bath Local Committee.)

**CLASS 29.**—*Pair of Carriage Horses (Mares or Geldings), driven in double harness on the second day of the Show. [2 entries.]*

**I. (£10.)**—C. RADCLIFFE, 19, Newport Road, Cardiff, chestnut mare, **Peterstone Pearl** (19421), foaled 1906 ; s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513) ; and chestnut mare, **Peterstoke Princess** (20938), foaled 1906 : s Polonius (4931), d Princess Royal (10442), s d His Majesty (2513).

**II. (£5.)**—HON. MRS. BATHURST, Lydney Park, Glos., chestnut gelding, **Lydney Forest Prince** (10311), foaled 1906 : s His Majesty (2513), d Lady Ulrica (4204), s d Rufus (1343) ; and dark chestnut mare, **Ewell Marion** (15767), foaled 1902, bred by W. Oppenheimer, Ewell Castle, Ewell, Surrey ; s Garton Duke of Connaught (3009), d Maid Marion (751), s d Lord Derby 2nd (417).

**CLASS 30.**—*Mare or Gelding, over 14.2 and under 15 hands, driven in harness on the third day of the Show. [4 entries.]*

**I. (£10.)** W. FOSTER, Mel Valley, Moseley, Worcester, brown gelding, **Mel Valley's King George**, bred by — Miller, Hull ; s Matchless King.

**II. (£5.)**—A. BUTCHER, George and Railway Hotel, Bristol, brown mare, **Lady Gordon**.

**III. (Bronze Medal).**—J. KERR, Loudwater, Rickmansworth, chestnut, **Loudwater Grace** ; s Garton Duke of Connaught, d Duchess of York, s d Cadet.

**R.**—A. E. FUSSELL, Croft's End Brick Works, St. George, Bristol, chestnut gelding, **Emlyn Cæsar**, foaled 1903 ; s Julius Cæsar 2nd (5666), d Eira Belle (15050), s d Polonius (4931).

**CLASS 31.**—*Trotting. Best Mare, Stallion or Gelding, under 15 hands, for speed and action, driven in harness on the third day of the Show. [4 entries.]*

**I. (£10.)**—A. BUTCHER, George and Railway Hotel, Bristol, brown mare, **Lady Gordon**.

**II. (£5.)**—A. E. FUSSELL, Croft's End Brick Works, St. George, Bristol, chestnut gelding, **Emlyn Cæsar**, foaled 1903 ; s Julius Cæsar 2nd (5666), d Eira Belle (15050), s d Polonius (4931).

**III. (Bronze Medal).**—P. AND L. SMITH, Moreton House, Wickwar, chestnut gelding, **Mel-Valley's Perfect Wonder** (late **Berkeley Claudius**, 8372), bred by the late A. S. Day, Berkeley Stud, near Crewe ; s Lord Hamlet (3750), d Peggy Sure Four (13014), s d Dane Royal (5575).

**CLASS 32.**—*Mare or Gelding, not over 13.2 hands, driven in harness on the fourth day of the Show.* [5 entries.]

**I. (£10.)**—W. FOSTER, Mel Valley, Moseley, Worcester, brown gelding; s Sir Horace.

**II. (£5.)**—P. AND L. SMITH, Moreton House, Wickwar, chestnut gelding, **Mel-Valley's Perfect Wonder** (late **Berkeley Claudius**, 8372), bred by the late A. S. Day, Berkeley Stud, near Crewe; s Lord Hamlet (3750), d Peggy Sure Four (13014), s d Dane Royal (5575).

**III. (Bronze Medal).**—MRS. T. GLENCROSS, The Loose Box, Weston-super-Mare, bay gelding, **Mel-Valley Spring Chicken**.

**R.**—A. G. VERRIER, Lord Rodney Stud, St. George, Bristol, E., **Never Mind**, 6y.; s Magpie's Danegelt, d Tissington Safety Pin.

**H.C.**—H. J. HICKERY, JUN., 69, Easton Road, Bristol, blue roan gelding, **Try Again**.

**CLASS 33.**—*Trotting. Best Mare, Stallion, or Gelding, 15 hands or over, for speed and action, driven in harness on the fourth day of the Show.* [4 entries.]

**I. (£10.)**—W. WINANS, Surrinden Park, Pluckley, Kent, brown mare, **Nancy Clancy**.

**II. (£5.)**—T. H. DAVIES, 57, Bute Street, Aberdare, bay mare, **Grace Greenlander**.

(The Prizes in Classes 34 to 37 were given by the Bath Local Committee).

**CLASS 34.**—*Mare or Gelding, over 14 hands, the property of a resident within a radius of eight miles from the Guildhall, Bath, and that had been such for not less than three months prior to the date of the Show, driven in harness on the fourth day of the Show.* [4 entries.]

**I. (£5.)**—W. TALL, Circus Mews, Bath, brown mare, **Cuckoo**, foaled 1907, bred by --- Colston, Roundaway Park, Devizes; s Last Fashion.

**II. (£3.)**—W. TALL, brown mare, **Lucille**.

**III. (£2.)**—H. PULLIN, Nailey Farm, St. Catherine's, near Bath, bay gelding, **Mischief**.

**R.**—A. E. FUSSELL, Croft's End Brick Works, St. George, Bristol, chestnut gelding, **Emlyn Cæsar**, foaled 1903; s Julius Cæsar 2nd (5666), d Eira Belle (15050), s d Polonius (4931).

**CLASS 35.**—*Dray or Cart Mare or Gelding, suitable for and having been worked by a Bath Brewer, Builder, Timber Merchant, Railway*

*Company, Haulier, Tradesman, or the Corporation, for not less than three months immediately prior to the date of the Show. Exhibited with gear on the fifth day of the Show. [2 entries.]*

**I. (£5.)**—THE BATH CO-OPERATIVE SOCIETY, LTD., 1, Berkeley Street, Bath, black mare, **Bessie**, foaled 1906.

**II. (£3.)**—ANGLO-AMERICAN OIL CO., LTD., (Bristol Branch), Sidney Wharf, Bathwick, black mare, **Bess**.

**CLASS 36.**—*Light Mare or Gelding, bona fide the property of a Tradesman or Firm carrying on business within the Municipal Borough of Bath, which had been regularly used for the purpose of his business for not less than three months immediately prior to the first day of May, 1912. The general turnout to be taken into consideration. Exhibited with trade vehicle and harness on the 5th day of the Show. [5 entries.]*

**I. (£5.)**—W. H. SMITH, High Street Corner, Bath, bay gelding, **Bath Pride** (late **Mel Valley Model**), bred by L. T. Baker, Eastcote Lodge, Middlesex; s Champion Berkeley Model (3663), d Sunset (8506), s d Evolution (2508).

**II. (£3.)**—P. BROADHURST, 3, York Buildings, Bath, bay mare, **Princess May**.

**III. (£2.)**—G. HUGHES, Bath Market, chestnut gelding, **Honest Tom**.

**R.**—THE BATH CO-OPERATIVE SOCIETY, LTD., 1, Berkeley Street, Bath, bay gelding, **Tommy**.

**CLASS 37.**—*Mare or Gelding, not over 14 hands, the property of a resident within a radius of eight miles from the Guildhall, Bath, and that had been such for not less than three months prior to the date of the Show. Driven in harness on the fifth day of the Show. [3 entries.]*

**I. (£5.)**—W. SILCOX, Pulteney Road Dairy, Bath, dark bay gelding, **Prince**.

**II. (£3.)**—W. HUGHES, Peter Street, Bath, black mare, **Merry Mite**.

## **SPECIAL PRIZE**

GIVEN BY THE HACKNEY HORSE SOCIETY.

*A Prize of £5, or a Gold Medal, for the best Mare or Gelding exhibited in Single Harness in Classes 26 to 37, subject to Conditions 52.*

**I.**—F. J. BATCHELOR, Hopwood, Alvechurch, Worcestershire, chestnut mare, **Airiel Queen** (20472), foaled 1908, bred by R. P. Evans, Woodhatch, Reigate; s Polonius (4931), d Julius (11929), s d Dayenham (4214).



**JUMPING.**

**CLASS 38.**—*Mare or Gelding, 15 hands and over, jumping in the best form on the first day of the Show.* [23 entries.]

**I. (210.)**—F. V. GRANGE, Alvaston, Nantwich, chestnut gelding, **Rufus**.

**II. (25.)**—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, bay mare, **Blink Bonny**.

**III. (22.)**—J. AND T. GLENCROSS, mare, **Nomination**.

**R.**—R. R. GRUBB, 3rd Hussars, Shorncliffe, black gelding, **Tommy**.

**CLASS 39.**—*Mare or Gelding, under 15 hands, jumping in the best form on the first day of the Show.* [13 entries.]

**I. (210.)**—J. AND T. GLENCROSS, Garth House Stables, Weston-super-Mare, grey mare, **Greylight**.

**II. (25.)**—S. PHELPS, Churcham, near Gloucester, bay, **Laddie**.

**III. (22.)**—B. J. LOCK, Ludney, Ilminster, grey, **Wait and See**.

**CLASS 40.**—*Mare or Gelding, 15.3 hands and over, jumping in the best form on the second day of the Show.* [16 entries.]

**I. (210.)**—F. W. FOSTER, Marsh Farm, Etwall, Derby, **Paddy**.

**II. (25.)**—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Lady**.

**III. (22.)**—MRS. R. P. CROFT, Round House, Ware, Herts, chestnut gelding, **Dan Leno**, foaled 1907; s Play Actor.

**CLASS 41.**—*Mare or Gelding, under 15.3 hands, jumping in the best form on the second day of the Show.* [18 entries.]

**I. (210.)**—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Nomination**.

**II. (25.)**—F. V. GRANGE, Alvaston, Nantwich, chestnut gelding, **Rufus**.

**III. (22.)**—B. B. BELLEW, Troyswood, Kilkenny, Ireland, chestnut gelding, **Tabasco**, foaled 1905.

**CLASS 42.**—*Mare or Gelding, 15 hands and over, jumping in the best form, on the third day of the Show.* [23 entries.]

**I. (210.)**—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Lady**.

**II. (25.)**—T. AND W. SINGER, High House, Corsley, Warminster, chestnut gelding.

**III. (22.)**—T. AND W. SINGER, **Nomination**.

CLASS 43.—*Mare or Gelding, under 15 hands, jumping in the best form on the third day of the Show.* [13 entries.]

I. (£10.)—S. PHELPS, Churcham, near Gloucester, bay, **Laddie**.

II. (£5.)—J. AND T. GLENCROSS, Garth House Stables, Weston-super-Mare, grey mare, **Greylight**.

III. (£2.)—B. B. BELLEW, Troyswood, Kilkenny, Ireland, chestnut gelding, **Sportsman**.

CLASS 44.—*Mare or Gelding, 15.3 hands and over, jumping in the best form on the fourth day of the Show.* [16 entries.]

I. (£10.)—T. AND W. SINGER, High House, Corsley, Warminster, **Nomination**.

II. (£5.)—F. W. FOSTER, Marsh Farm, Etwall, Derby, **Paddy**.

III. (£2.)—H. BEEBY, Manor House Stables, Melton Mowbray, **Melton**.

R.—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Lady**.

CLASS 45.—*Mare or Gelding, under 15.3 hands, jumping in the best form on the fourth day of the Show.* [18 entries.]

I. (£10.)—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, bay mare, **Blink Bonny**.

II. (£5.)—J. AND T. GLENCROSS, **Nomination**.

III. (£2.)—B. B. BELLEW, Troyswood, Kilkenny, Ireland, chestnut gelding, **Sportsman**.

R.—C. W. F. CARTER, Alfred Street, Westbury, Wilts, **Rosalie**.

CLASS 46.—*Mare or Gelding, 15 hands and over, jumping in the best form on the fifth day of the Show.* [20 entries.]

I. (£10.)—T. AND W. SINGER, High House, Corsley, Warminster, chestnut gelding.

II. (£5.)—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, bay mare, **Blink Bonny**.

III. (£2.)—R. R. GRUBB, 3rd Hussars, Shorneliff, black gelding, **Tommy**.

R.—W. WINANS, Surrenden Park, Pluckley, Kent, bay gelding, **Thinkograph**.

CLASS 47.—*Mare or Gelding, under 15 hands, jumping in the best form on the fifth day of the Show.* [11 entries.]

I. (£10.)—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Kitty**.

II. (£5.)—B. B. BELLEW, Troyswood, Kilkenny, Ireland, chestnut gelding, **Sportsman**.

III. (£2.)—B. B. BELLOW, chestnut gelding, **Tabasco**, foaled 1905.

## CHAMPION CLASS.

(£10 of the amount given in Class 48 was contributed by the Bath Local Committee).

CLASS 48.—*Mare or Gelding, any height, having won a Prize in Classes 38 to 47, jumping in the best form on the fifth day of the Show.*

**I. (£20).**—J. AND T. GLENCROSS, The Loose Box, Milton Road, Weston-super-Mare, mare, **Nomination.**

**R.**—J. AND T. GLENCROSS, bay mare, **Blink Bonny.**

## CATTLE.

### DEVON.

(£10 towards the prizes in Classes 49 to 55 was given by the Devon Cattle Breeders' Society).

CLASS 49.—*Devon Cow, in-Milk, calved before 1909.* [4 entries.]

**I. (£10).**—W. E. MALLETT, Rainbow Wood Farm, Claverton Down, Bath, **Cutsey Brassey 3rd** (21911), born 20th January, 1907, bred by E. Clatworthy, Cutsey, near Taunton; s Ivanhoe, d Brassey 2nd.

**II. (£5).**—W. E. MALLETT, **Golden Cup 3rd** (21916), born 9th March, 1907, bred by E. Clatworthy, Cutsey, near Taunton; s Ivanhoe, d Golden Cup 2nd.

**III. (Bronze Medal).**—MISS TROTTER, Standerwick Court, Frome, **Ruby 23rd**, born 8th September, 1908, bred by H. W. Corner, Inglescombe, Bath; s Noble Boy (4832), d Ruby 21st (18767), s d Lord Breach (3467).

**R.**—E. CLATWORTHY, Cutsey, Trull, Taunton, **Goodmaid 3rd** (22600), born 3rd April, 1906; s Bickley Opal (4533), d Goodmaid (16014), s d Rent Day 2nd (3800).

CLASS 50.—*Devon Heifer, in-Milk, calved in 1909.* [3 entries.]

**I. (£10).**—VISCOUNT PORTMAN, Bryanston, Blandford, Dorset, **Bryanston Goodwill**, born 28th March; s Bryanston Ajax (5974), d Compton Goodluck 2nd (22314), s d Overton Eclipse (5078).

**II. (£5).**—L. H. ALFORD, Horridge, Ashford, North Devon, **Sunbeam** (23191), born 21st February; s Capton Sunny Jim (5192), d Snowdrop (17293), s d Holcombe Viscount (3898).

CLASS 51.—*Devon Heifer, calved in 1910.* [5 entries.]

**I. (£10) and Champion (£10.)\***—C. MORRIS, Highfield Hall, St. Albans, Herts, **Highfield Ladybird 5th** (24487), born 1st March; s Pound Lord Brassy 5th (5622), d Highfield Ladybird (20201), s d Magna Charta of Pound (4446).

\* Given by the Somerset County Agricultural Association for the best Cow or Heifer in Classes 50 to 52.

**II. (£5.)**—E. CLATWORTHY, Cutsey, Trull, Taunton, **Cutsey Cornelia** (24145), born 21st January; s Roadwater Prince (6534), d Cuddling Curly (21272), s d Bickley Opal (4533).

**III. (Bronze Medal).**—W. E. MALLETT, Rainbow Wood Farm, Claverton, Bath, **Hestercombe Spinach** (24571), born 14th January, bred by the late Hon. E. Portman, Hestercombe, Taunton; s Hestercombe Chartist, d Hestercombe Lettuce.

**R.**—VISCOUNT PORTMAN, Bryanston, Blandford, **Bryanston Periwinkle** (24583), born 11th January; s Bryanston Golden Rod (5977), d Bryanston Pansy (22979), s d Gladiator (5253).

**V.H.C.**—VISCOUNT PORTMAN, **Hestercombe Daisy**, born 18th February, bred by the late Hon. E. W. B. Portman, Hestercombe; s Stockleigh Masterpiece (6548), d Dahlia (23789), s d Lord Pitsworthy (4440).

*CLASS 52.—Devon Heifer, calved in 1911. [8 entries.]*

**I. (£10) and R. for Champion\*.**—VISCOUNT PORTMAN, Bryanston, Blandford, **Careless**, born 15th January, bred by the late Hon. E. W. B. Portman, Hestercombe; s Filleigh Gay Boy (6364), d Hestercombe Contessa (22955), s d Cæsar (5174).

**II. (£5.)**—MRS. A. C. SKINNER & SON, Pound, Bishops Lydeard, **Pound Lady 2nd**, born 19th January; s Pound Gladiator (6169), d Lady (20482), s d Noble Boy (4832).

**III. (£2.)**—VISCOUNT PORTMAN, **Fashion**, born 16th January, bred by the late Hon. E. W. B. Portman, Hestercombe; s Filleigh Gay Boy (6364), d Fuchsia (22950), s d Carolus (5450).

**R.**—W. E. MALLETT, Rainbow Wood Farm, Claverton, Bath, **Rainbow Holly**, born 20th January; s Cutsey Gem (6024), d Nancy 8th, (20919), s d Sir Alexander.

**V.H.C.**—VISCOUNT PORTMAN, **Print**, born 23rd March, bred by the late Hon. E. W. B. Portman, Hestercombe, Taunton; s Stockleigh Masterpiece (6548), d Hestercombe Poplin (21609), s d Pound Pink 'Un (5350).

**H.C.**—E. CLATWORTHY, Cutsey, Trull, Somerset, **Cherry**, born 15th February, bred by C. L. Hancock, Cothelstone, Taunton; s Crusader (4954), d Cothelstone Chaff (22712), s d Bickley Opal (4533).

*CLASS 53.—Devon Bull, calved in 1908 or 1909. [3 entries.]*

**I. (£10.)**—VISCOUNT PORTMAN, Bryanston, Blandford, **Bryanston Amber** (6271), born 6th August, 1908; s Bryanston Ajax (5974), d Goldeup (19644), s d Major (4250).

**II. (£5.)**—VISCOUNT PORTMAN, **Bryanston Admiral** (6631), born 5th January, 1909; s Bryanston Ajax (5974), d Compton Total (19338), s d Nobleman (2848).

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\* Given by the Somerset County Agricultural Association for the best Cow or Heifer in Classes 50 to 52.

**CLASS 54.—*Devon Bull, calved in 1910.* [6 entries.]**

**I. (£10) and Champion (£10)\*.**—C. MORRIS, Highfield Hall, St. Albans, Herts, **Highfield Fearless** (7134), born 8th January; s Pound Bellringer (5617), d Whimble Beauty 3rd (195707), s d Hestercombe Redlight (4417).

**II. (£5).**—VISCOUNT PORTMAN, Bryanston, Blandford, **Hestercombe Dasher**, born 28th March, bred by the late Hon. E. W. B. Portman, Hestercombe, Taunton; s Stockleigh Masterpiece (6548), d Dairy Girl (21118), s d Chairman (4362).

**III. (£2).**—C. MORRIS, **Highfield Victor** (7146), born 4th January; s Pound Lord Brassy 5th (5622), d Highfield Countess (21522), s d Pound Monarch (5089).

**R.**—W. E. MALLETT, Rainbow Wood Farm, Claverton, Bath, **Ruby King**, born 3rd February, bred by — Bussell; s Hestercombe Dairyman (5295), d Pink 3 (23269).

**V.H.C.**—SIR G. A. H. WILLS, BART., Northmoor, Dulverton, Somerset, **Northmoor Royal Mail** (7210), born 2nd January; s Northmoor Royal (5873), d Tottie (21136), s d Chairman (4362).

**C.**—VISCOUNT PORTMAN, **Expert**, born 5th April, bred by Legg Bros., Stourpaine, Blandford; s Equal (6007), d Flighty (26816), s d Bearwood Coronation (4708).

**CLASS 55.—*Devon Bull, calved in 1911.* [6 entries.]**

**I. (£10) and R. for Champion\***—MRS. A. C. SKINNER & SON, Pound, Bishops Lydeard, born 12th January; s Pound Fearless, d Pound Curly 10th, (22342), s d Combe Florey Robin (5463).

**II. (£5).**—C. MORRIS, Highfield Hall, St. Albans, Herts, **Highfield Victor 2nd** (Vol. xxv.), born 17th January; s Pound Lord Brassy 5th (5622), d Highfield Countess (21522), s d Pound Monarch (5089).

**III. (£2).**—VISCOUNT PORTMAN, Bryanston, Blandford, **Goldmine**, born 16th April, bred by the late Hon. E. W. B. Portman, Hestercombe, Taunton; s Filleigh Gay Bey (6364), d Dairy Girl (21118), s d Chairman (4362).

**R.**—SIR G. A. H. WILLS, BART., Northmoor, Dulverton, Somerset, **Northmoor Royal Standard**, born 1st January; s Northmoor Royal (5873), d Cotherstone Trump (20021), s d Lord Culverhay (3469).

**V.H.C.**—VISCOUNT PORTMAN, **Marmion**, born 23rd March, bred by the late Hon. E. W. B. Portman, Hestercombe, Taunton; s Stockleigh Masterpiece (6548), d Hestercombe Pink (22268), s d Pound Pink 'Un (5350).

**C.**—VISCOUNT PORTMAN, **Pageant**, born 21st January; s Bryanston Pitcher (5980), d Bryanston Columbine (22974), s d Rodney (5366).

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\* Given by the Somerset County Agricultural Association for the best Bull in Class 54 or 55.

## SOUTH DEVON

(The Prizes in Class 56 were given by the South Devon Herd Book Society).

CLASS 56.—*South Devon Cow, in-milk, calved before 1909.*  
[2 entries.]

**I. (£10.)** BUTLAND BROS., Leigham, Plympton, Devon, **Fancy 2nd** (5822), born 28th June, 1904; s Leigham Champion (1667), d Fancy (4038), s d Cremer (969).

**II. (Silver Medal).**—W. AND H. WHITLEY, Primley Farm, Paignton, **Handsome 4th** (5601), born 2nd December, 1903, bred by J. Skinner, Tidwell, Staverton, Ashburton; s Big Ben (1593), d Handsome 2nd (3890), s d Masher (769).

CLASS 57.—*South Devon Heifer, in-Milk, calved in 1909.* [1 entry.]

**I. (£10.)**—BUTLAND BROS., Leigham, Plympton, Devon, **Snowdrop 5th** (8972), born 25th February; s Good Sort (2378), d Snowdrop (4424), s d Happy Jack (874).

CLASS 58.—*South Devon Heifer, calved in 1910.* [6 entries.]

**I. (£10.)**—BUTLAND BROS., Leigham, Plympton, Devon, **Handsome 9th** (9765), born 28th March; s Henry 7th (3178), d Handsome 4th (6956), s d Leigham Champion (1667).

**II. (£5.)**—D. CAMP, Widland, Modbury, South Devon, **Orange Girl** (9775), born 1st March; s Henry 8th (3179), d Widland Sunbeam 3rd (7606), s d Happy Harry (2632).

**III. (£2.)**—H. HAWKEN & SON, Okenbury, Kingston, Kingsbridge, **Dairy-maid** (10023), born 6th January; s Ruler (3028), d Countess (7777), s d Elector (2354).

**R.**—F. B. MILD MAY, M.P., Flete, Ivybridge, **Lilian**, born 18th February; s Henry 8th (3179), d Ladybird (7916), s d Duke of Devonshire.

**H.C.**—W. AND H. WHITLEY, Primley Farm, Paignton, **Primley Dora** (10477), born 24th January; s Morning Star (2965), d Primley Alice (8185), s d Manager (2173).

CLASS 59.—*South Devon Heifer, calved in 1911.* [6 entries.]

**I. (£10.)**—H. HAWKEN & SON, Okenbury, Kingston, Kingsbridge, **Dairymaid 3rd**, born 10th February; s Sunny Jim (3316), d Dairymaid (8481), s d Elector (2354).

**II. (£5.)**—F. B. MILD MAY, M.P., Flete, Ivybridge, **Camelia 2nd**, born 26th February; s Butleigh Prince (3109), d Camelia (8591), s d Golden King.

**III. (£2.)**—W. AND H. WHITLEY, Primley Farm, Paignton, **Primley Edna**, born 18th January; s What I Wanted (1388), d Dina 2nd (5963), s d Forager (1447).

**R.**—BUTLAND BROS., Leigham, Plympton, Devon, **Beauty 18th**, born 30th April; s Henry 7th (3178), d Beauty 11th (6948), s d Leigham Champion (1667).

**H.C.**—BUTLAND BROS., **Handsome 10th**, born 12th May ; s Henry 7th (3178), d Handsome 6th (8301), s d Lo Ben (2167).—W. AND H. WHITLEY, **Primley Elegance**, born 1st March ; s What I Wanted (1388), d Cherry 3rd (5818), s d Leigham Champion (1667).

CLASS 60.—*South Devon Bull, calved in 1908 or 1909.* [2 entries.]

**I. (£10.)**—J. LEECH, Carwen, Lanreath, Duloe, R.S.O., **New Year's Gift**, born 1st January, 1909, bred by W. H. Pain, High House, Kingsbridge ; s Charlton Hero (1831), d Primrose (5336).

**II. (Silver Medal).**—G. H. EUSTICE, Bezurrell, Gwinear, Hayle, **Tariff Reform** (3594), born 2nd February, 1909, bred by J. Wakeham, North Huish, South Brent ; s Ley Marquis (2941), d Mabel (6262).

CLASS 61.—*South Devon Bull, calved in 1910.*—

*First prize, £10—second, £5—third, £2.*

NO ENTRY.

CLASS 62.—*South Devon Bull, calved in 1911.* [3 entries.]

**I. (£10.)**—W. AND H. WHITLEY, Primley Farm, Paignton, **Primley Excelsior**, born 2nd April ; s What I Wanted (1388), d Coquette (6374), s d Babland Boy (1793).

## SHORTHORN.

(The 1st Prize in Class 63 was given by the Shorthorn Society, and the 1st Prize in Class 64 by the Dairy Shorthorn (Coates's Herd Book) Association).

CLASS 63.—*Pedigree Shorthorn Dairy Cow, in-Milk, four years old and upwards on May 22, eligible for, and entered in Coates's Herd Book, or Pedigree sent for such entry previous to the Show, and not having previously won a similar prize given by the above-named Society or Association in 1912, milked in the ring before judging, under Conditions 63.* [7 entries.]

**I. (£10.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, white, **Sunflower 11th** (Vol. lii., p. 795), born 29th September, 1902, bred by R. W. Hobbs and Sons, Kelmscott, Lechlade, Glos. ; s Underley Hero 2nd (82486), d Sunflower 8th, s d Earl of Southrop 125th (66988).

**II. (£5.)**—S. SANDAY, Puddington Hall, near Chester, red and white, **Beaumont Princess** (Vol. lvii., p. 476), born 3rd January, 1907, bred by W. Bateman, Beaumont Grange, near Lancaster ; s Lancaster Hero (92186), d Princess Louise, s d Matchless (84091).

**E.**—LORD ROTHSCHILD, red, **Nelly Lee 20th** (Vol. lvi., p. 1,107), born 6th April, 1904, bred by J. W. Sanders, Gilmorton, Lutterworth ; s Duke of Keythorpe (78747), d Nelly Lee 13th (Vol. li., p. 915), s d Duke of Warlabay (72423).

**CLASS 64.**—*Pedigree Shorthorn Dairy Cow, in-Milk, under four years old on May 22, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize given by the above-named Society or Association in 1912, milked in the ring before judging, under Conditions 63. [9 entries.]*

**I. (#10.)**—C. R. W. ADEANE, Babraham Hall, Cambs, red, **Freemason's Fortune** (Vol. lviii.), born 1st March, 1909, bred by G. Taylor, Cranford, Middlesex; s Salmon's Freemason (100526), d Fortuna 10th, s d Tostig (87564).

**II. (#5.)**—C. R. W. ADEANE, red, **Babraham Constance** (Vol. liv., p. 424), born 24th March, 1909; s Babraham Nero (94099), d Babraham Countess Clara, s d Prince Pericles 24th (86953).

**R.**—LORD ROTHSCHILD, Tring Park, Tring, Herts, dark roan, **Primula 6th** (Vol. lvi., p. 1,095), born 3rd May, 1909; s Conjuror (91310), d Primula 5th (Vol. lv., p. 1,103), s d Bright Bellman (88022).

**H.C.**—S. SANDAY, Puddington Hall, near Chester, roan, **Barrington Belle**, born 20th June; s Salmon's Freemason (100526), d Barrington Princess 4th, s d Sir Barrington 5th (75042).

**CLASS 65.**—*Shorthorn Cow in-Milk, calved before 1909. [7 entries.]*

**I. (#10.)**—G. A. J. BELL, Woldhurstlea, Crawley, Sussex, red, **Ceres 23rd**, born 6th January, 1908, bred by H. Baker, Chedlow, Malmesbury; s Proud Conqueror (89721), d Ceres 11th, s d Bapton Crown (78288).

**II. (#5.)**—E. R. MORRISON, Baldhorns Park, Rusper, Sussex, roan, **Damory Fanny**, born 20th January, 1907, bred by — Tory, Damory Court, Blandford; s Damory Gallant Victor (88340), d Gorgeous, s d Fitz-Alan (76688).

**III. (#2.)**—W. M. CAZALET, Fairlawne, Tonbridge, white, **White Rose**, born 5th January, 1905, bred by R. Bruce, Heatherwick, Inverwier, Scotland; s Winning Hope (80283), d Rosalie 6th, s d Prince of Archers (71240).

**R.**—J. McClymont Reid, Cleeve Grange, Bishops Cleeve, Glos., roan, **Belle of the Ball**, born 6th April, 1908, bred by the Right Hon. F. J. S. Foljambe, Osberton Hall, Worksop, Notts.; s Buscot Friar (98259), d Belle of New York (Vol. lv., p. 704), s d Haycroft (79041).

**H.C.**—VISCOUNT TREDEGAR, Tredegar Park, Newport, Mon., roan, **Eralina**, born 5th April, 1906, bred by A. Fair, Pratis, Leven; s Broadhooks Conqueror (85451), d Ermine 2nd, s d Brave Archer (70018).

**CLASS 66.**—*Shorthorn Heifer in-Milk, calved in 1909. [4 entries.]*

**I. (#10.)**—F. MILLER, La Belen, Clifton Road, Birkenhead, roan, **Augusta 125th**, born 27th February, bred by G. Bell, Moneymore, co. Londonderry; s Golden Flush (98962), d August 112th, s d Tilly (84917).

**II. (#5.)**—R. J. BALSTON, Bilsington Priory, Ashford, Kent, roan, **Dewlap**, born 27th July; s Tehidy Robin Hood (97420), d Maydew, s d Rufus of Huntingtower (93306).



**III. (Bronze Medal).**—J. D. WILLIS, Bapton Manor, Codford, Wilts, roan, **Jacqueline**, born 12th January; s Bapton Mischief (97946), d Joan, s d Bapton Jester (85236).

CLASS 67.—*Shorthorn Heifer, calved in 1910.* [7 entries.]

**I. (210).**—LADY GRANTLEY, Oakley Hall, Cirencester, white, **Village Lass**, born 23rd February, bred by W. T. Garne & Sons, Aldsworth; s Village Beau (87631), d Patient Lass, s d Aldsworth Pioneer (82701).

**II. (25).**—C. E. Gunther, Tongswood, Hawkhurst, Kent, roan, **Tongswood Edith**, born 21st January; s Spicy Hope, d Strawberry Dame, s d Prince Benedict (86904).

**III. (22).**—VISCOUNT TREDEGAR, Tredegar Park, Newport, Mon., roan, **Augusta of Tredegar**, born 5th March; s Diamond Marksman (98598), d Tredegar Baroness Auricula, s d Baron Shipton (85288).

**R.**—W. M. CAZALET, Fairlawne, Tonbridge, roan, **Clipper Keepsake**, born 20th March, bred by C. Napier, Nether Dallachy, Boyndie, Banff; s Violet's Victory (85001), d Boyne Clipper, s d Watchman (71828).

**H.C.**—R. J. BALSTON, Bilsington Priory, Ashford, Kent, red and white, **Bilsington Miss Ramsden**, born 26th January; s Daystar (101974), d Anemone, s d Waresley Crown Prince (97601).—F. MILLER, La Belen, Clifton Road, Birkenhead, roan, **Sutton Craggs 3rd**, born 10th January; s Royal Duke (100419), d Gay Craggs, s d Cornish Knight (78641).

CLASS 68.—*Shorthorn Heifer, calved in 1911.* [10 entries.]

**I. (210).**—J. T. HOBBS, Maiseyhampton, Fairford, Glos., roan, **Hampton Sweetheart**, born 29th March; s Duke of Hampton (105345), d Bright Sweetheart, s d Bright Fashion (85421).

**II. (25).**—J. D. WILLIS, Bapton Manor, Codford, Wilts, roan, **Bapton Beauty**, born 5th February; s Alnwick Favourite (90653), d Beauty 3rd, s d My Hope (86705).

**III. (22).**—LADY GRANTLEY, Oakley Hall, Cirencester, roan, **Curfew Bell**, born 8th May, bred by C. W. Kellock, Highfields, Audlem; s Gerome of Cluny (91870), d Winning Bell, s d Winning Hope (80283).

**R.**—R. STRATTON, The Duffryn, Newport, Mon., red, **Chloe**, born 8th January; s Rustio (103790), d Clarinda, s d Great Mongol (88766).

**H.C.**—T. E. WATSON, Catsash, Caerleon, Mon., roan, **Beatrice 4th**, born 14th January; s Wanderer's Chief (80210), d Beatrice 3rd, s d Duke of Tyne (74425).

CLASS 69.—*Shorthorn Bull, calved in 1908 or 1909.* [5 entries.]

**I. (210) and Champion\***—VISCOUNT TREDEGAR, Tredegar Park, Newport, Mon., roan, **Pretender** (103343), born 18th January, 1908, bred by W. T. Garne and Sons, Aldsworth; s Village Coronet (97548), d Patient Lass, s d Aldsworth Pioneer (82701).

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\* Given by the Shorthorn Society for the best Bull in Classes 69, 70 or 71, entered in or eligible for entry in Coates's Herd Book.

**II. (£5.)**—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, roan, **Tongswood Banton**, born 19th January, 1909; s Bapton Yeoman, d Strawberry Dame, s d Prince Benedict (86904).

**III. (Bronze Medal)**—F. MILLER, La Belen, Clifton Road, Birkenhead, red, **Prospector** (106618), born 4th March, 1909, bred by C. H. Jolliffe, Newbus Grange, Darlington; s Pride of Tees (96474), d Golden Wreath 15th, s d Golden Arrow (83583).

**R.**—W. AND H. WHITLEY, Primley Farm, Paignton, red, **Primley Brutus** (106550), born 26th March, 1909; s Pride of Tees (96474), d Crown Gem, s d Royal Mint (87199).

#### CLASS 70.—*Shorthorn Bull, calved in 1910.* [14 entries.]

**I. (£10)** and **R.** for Champion\*—F. MILLER, La Belen, Clifton Road, Birkenhead, roan, **Man o' War**, born 1st February, bred by J. C. Toppin, Musgrave Hall, Skelton, Penrith; s Bletchley Lord (90934), d Mermaid, s d British Volunteer (85448).

**II. (£5.)**—SIR B. G. D. SHEFFIELD, BART., Normanby Park, Doncaster, roan, **Normanby Neptune** (109546), born 13th April; s Gainford Sweetmeat (98887), d Rose of Wrexdale, s d Alnwick Favourite (90653).

**III. (£2.)** J. LEE, Monro Lodge, Littlewick Green, Maidenhead, Berks, rich roan, **Littlewick Count** (Vol. lviii.), born 14th February; s Count Searlet (101897), d Littlewick Queen (Vol. lv., p. 868), s d K.C. (95588).

**R.**—R. STRATTON, The Duffryn, Newport, Mon., roan, **Mischief**, born 30th March, bred by Garne & Son, Aldsworth, Glos.; s Pride of Ablington (103345), d Misfortune, s d Bapton Crown (78288).

**V.H.C.**—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, white, **Brisk Broad Hooks**, born 4th April, bred by E. Cory, Droagh, Larne; s Special Stamp (100734), d Roan Butterfly, s d Watchword.

**H.C.**—J. McCLYMONT REID, Cleeve Grange, Bishops Cleeve, Glos., roan, **Walton Robert** (110552), born 24th January, bred by W. Hazell; s Robert Bruce (77661), d Avalanche 6th (Vol. liv., p. 775), s d Golden Hope (91859).

#### CLASS 71.—*Shorthorn Bull, calved in 1911.* [10 entries.]

**I. (£10.)**—F. MILLER, La Belen, Clifton Road, Birkenhead, roan, **Fragrance Pride**, born 2nd January, bred by J. Gill, Thorn Farm, Stainton, Penrith; s Ascott Pride (104567), d Thorn Farm Fragrance, s d Royal Ruby (96951).

**II. (£5.)**—J. T. HOBBS, Maiseyhampton, Fairford, roan, **Another Duke**, born 2nd April; s Duke of Hampton (105345), d Musical 148th, s d Hampton Bowling (99064).

**III. (£2.)**—J. D. WILLIS, Bapton Manor, Codford, Wilts, roan, **Bapton Mandoline**, born 17th January; s Bold Bailie (90943), d Melody, s d Merry-mason (67486).

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\* Given by the Shorthorn Society for the best Bull in Classes 69, 70 or 71, entered in or eligible for entry in Coates's Herd Book.

**R.**—J. McClymont Reid, Cleeve Grange, Bishops Cleeve, Glos., roan, **Minstrel Boy 10th**, born 11th January, bred by Dyke Bros., Bariles, Shipston-on-Stour, Warwickshire; s Pride of Garbity (96467), d Bariles Gwynne 2nd (Vol. lv., p. 675), s d Ronald 3rd (79776).

**V.H.C.**—W. M. CAZALET, Fairlawne, Tonbridge, dark roan, **Fairlawne, Augusta's Prince**, born 9th March; s Golden Orange (105636), d Augusta Goldie, s d Pride of the Goldies (100006).

**H.C.**—A. B. CRIDDLE, Locking Head Farm, Weston-super-Mare, roan, **Beaufort Royal Fashion**, born 3rd March, bred by Lord Lovat, Beaufort Castle; s Cherry Victor (98371), d Polly Lind 2nd, s d Royal Star (71502).

## HEREFORD.

CLASS 72.—*Hereford Cow, in-Milk, calved before 1909.* [4 entries.]

**I. (£10)** and **Champion (£10)\***—W. B. TUDGE, Stepside, Onibury, Shropshire, **Noble Frolic**, born 15th February, 1906, bred by R. Bach; s Eaton Noble (24008), d Ony Frolic (Vol. xxxviii., p. 241).

**II. (£5.)**—EARL OF COVENTRY, Croome Court, Worcester, **Merriment**, born 29th March, 1903; s Fortunis (21396), d Misbelief (Vol. xxxiv., p. 262), s d Misereant (19595).

**III. (Bronze Medal).**—G. BUTTERS, Hill House, Newton, Leominster, **Beauty**, born 5th February, 1905; s Scot (23134), d Newton Snowdrop (Vol. xxxi., p. 252), s d Abductor (17636).

**R.**—J. G. COOKE-HILL, Shelsley Bank, Stanford Bridge, Worcester, **Clairvoyant**, born 15th May, 1906, bred by T. Barneby, Saltmarsh Castle, near Bromyard; s Rougemont (20296), d Chlorodyne, s d Gambler (20639).

CLASS 73.—*Hereford Heifer, in-Milk, calved in 1909.* [3 entries.]

**I. (£10)** and **R. for Champion\***—J. G. COOKE-HILL, Shelsley Bank, Stanford Bridge, Worcester, **Shelsley Primula**, born 27th January; s Shelsley (26480), d Primrose, s d Kinnersley King (20116).

**II. (£5.)**—D. A. THOMAS, Llanwern, near Newport, Mon., **Buckenhill Lass**, born 23rd March, bred by R. Phipps (the late); s Success (26513), d Wilton Lass (Vol. xxxviii., p. 667), s d Locarno (20797).

**III. (Bronze Medal).**—G. LLOYD-JONES, Heath Grange, Worcester, **Ivington Beauty**, born 5th May, bred by R. Bright, Leominster; s Banquo (21126), d Bright's Oyster Gal (35217), s d Glencoe (17279).

CLASS 74.—*Hereford Heifer, calved in 1910.* [10 entries.]

**I. (£10.)**—MRS. E. MEDICOTT, Bodenham, S.O., Herefordshire, **Virginia 3rd** born 26th February; s Locarno (20797), d Virginia (Vol. xli., p. 564), s d Lancer (21515).

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\* Given by the Hereford Herd Book Society for the best Cow or Heifer in Classes 72 to 75).

**II. (25.)**—D. A. THOMAS, Llanwern, near Newport, Mon., **Coalport**, born 19th January; s Rougemont (20296), d Curly 56th (Vol. xl., p. 222), s d All Fours (22697).

**III. (22.)**—J. G. COOKE-HILL, Shelsley Bank, Stanford Bridge, Worcester, **Shelsley Florence**, born 11th January; s Eaton Sovereign (26832), d Florence, s d Gambler (20639).

**R.**—G. BUTTERS, Hill House, Newton, Leominster, **Duchess**, born 15th January; s Sailor Prince (26465), d Echo (Vol. xl., p. 287), s d Nelson (20885).

**V.H.C.**—P. COATS, Sheepcote, Clifford, Herefordshire, **Dancing Girl**, born 3rd January; s Milton (25571), d Ladybird (Vol. xxxviii., p. 339), s d Bage Protector (21167).

**H.C.**—MRS. E. MEDLICOTT, **Sunlight 2nd**, born 11th March; s Locarno (20797), d Kitty 14th (Vol. xli., p. 562), s d Blue Ruin (18713).

CLASS 75.—*Hereford Heifer, calved in 1911.* [11 entries.]

**I. (210.)**—J. G. COOKE-HILL, Shelsley Bank, Stanford Bridge, Worcester, **Shelsley Luxury**, born 18th January; s Stockton (26509), d Lux, s d Samson (24269).

**II. (25.)**—D. A. THOMAS, Llanwern, near Newport, Mon., **Pansy 18th**, born 1st January, bred by J. Bounds, The Lowe Farm, Pembridge; s Lanar (26245), d Pansy 8th (Vol. xxxv., p. 212), s d Lucifer (20172).

**III. (22.)**—R. KEENE, Llanvihangel Court, Rogiet, Newport, Mon., **Fantastical**, born 11th January; s Renew (27821), Fandengo, s d Wettern Marksman (23839).

**R.**—P. COATS, Sheepcote, Clifford, Hereford, **Lady Godiva**, born 2nd January; s Milton (25571), d Pretty Lass (Vol. xxxiii., p. 283), s d Prince Richard (17450).

**V.H.C.**—MRS. E. MEDLICOTT, Bodenham, S.O., Herefordshire, **Virginia 4th**, born 4th January; s Locarno (20797), d Virginia (Vol. xli., p. 564), s d Lancer (21515).

**H.C.**—A. E. HUGHES, Wintercote, Leominster, **Misty**, born 22nd January; s Ronald (26450), d Margery, s d Pearl King (24192).

CLASS 76.—*Hereford Bull, calved in 1908 or 1909.* [4 entries.]

**I. (210) and Champion (210)\***—SIR J. R. G. COTTERELL, BART., Garnons, Hereford, **Curfew**, born 5th May, 1909; s Royal Ringer (26458), d Curly 39th, s d Rose Cross 2nd (14865).

**II. (25.)**—EARL OF COVENTRY, Croome Court, Worcester, **Dollymount** (27500), born 17th January, 1909; s Challenger (2600), d Dolly (Vol. xxxvii., p. 335), s d Earl Marshal (22106).

**III. (Bronze Medal).**—H. W. TAYLOR, Showle Court, Ledbury, Herefordshire, **Clive** (27444), born 3rd January, 1909; s Titus (26530), d Fair Alice, s d Samson (20312).

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\* Given by the Hereford Herd Book Society for the best Bull in Classes 76 to 78.

**CLASS 77.—Hereford Bull, calved in 1910. [7 entries.]**

**I. (210).—**SIR J. R. G. COTTERELL, BART., Garnons, Hereford, **Comet**, born 12th April; s All Right (24348), d Stella, s d Marcellus (22353).

**II. (25).—**G. BUTTERS, Hill House, Newton, Leominster, **Sailor King**, born 31st January; s Sailor Prince (26465), d Lassie (Vol. xxxix., p. 285), s d Scot (23134).

**III. (22).—**J. TUDGE, Duxmoor, Craven Arms, Salop, **Duxmoor**, born 15th March; s Lowland Pemier (25518), d Mistress Jean (Vol. xlii, p. 924), s d Jacob 11th (22939).

**R.—**J. G. COOKE-HILL, Shelsley Bank, Stanford Bridge, Worcester, **Cameron**, born 12th January, bred by Capt. E. L. A. Heygate, Buckland, Leominster; s Highland Prince (25437), d Ivy, s d Steelclad (17557).

**CLASS 78.—Hereford Bull, calved in 1911. [14 entries.]**

**I. (210) and R. for Champion\*—**A. E. HUGHES, Wintercott, Leominster, **Panbula**, born 10th January; s Ronald (26450), d Patch, s d Pearl King (24192)

**II. (25).—**SIR J. R. G. COTTERELL, BART., Garnons, Hereford, **Challenger**, born 2nd January; s Broadward Champion (26690), d Lily, s d Carbineer (19926).

**III. (22).—**F. BIBBY, Hardwicke Grange, Shrewsbury, **Clive Count 3rd**, born 15th January; s Weston Star (25863), d Cherry Blossom (Vol. xxxvi, p. 384), s d Cherry Stone (22031).

**R.—**DE F. PENNEFATHER, Kinnorsley Castle, Herefordshire, **Ringer**, born 7th January; s Albert (25896), d Ringlet, s d Baronet (20456).

**V.H.C.—**W. B. TUDGE, Stepside, Onibury, Shropshire, **Stepside**, born 9th January; s Minoru (27700), d Gwendoline (Vol. xli., p. 801), s d Commandant (22040).

**H.C.—**SIR F. CAWLEY, BART., M.P., Berrington Hall, Leominster, **Bulrush**, born 6th January; s Bobstay (25942), d Miss Buller (Vol. xxxviii, p. 251), s d (General Buller (20648).

**C.—**SIR F. CAWLEY, BART., M.P., **Berrington Ringer**, born 20th January; Albatross (19193), s d Happy Ringer (Vol. xxxii., p. 220), s d Happy Hampton (16097).

**SUSSEX.**

**CLASS 79.—Sussex Cow or Heifer, in-Milk, calved before 1910. [3 entries.]**

**I. (210) and Special†—**J. AUNGIER, Lynwick, Rudgwick, **Lynwick Beauty 5th**, born 1st January, 1906; s Sussex (1817), d Lynwick Beauty (8394), s d Drungewick Prebble (1666).

Given by the Hereford Herd Book Society for the best Bull in Classes 76 to 78.

† Given by the Sussex Herd Book Society, a Silver Medal for the best Cow or Heifer in Classes 79, 80 or 81.

**II. (£5.)**—W. H. THORNTON, Lock, Partridge Green, **Molly 3rd of Lock**, born 2nd February, 1908 : s Tutsham Toreador (2016), d Mayfield Molly 4th (7272), s d Young Goldfinder (1467).

**III. (Bronze Medal).**—J. GROVES, Browning's Manor, Blackboys, Sussex, **Lophorn 2nd** (11527), born 25th September, 1906, bred by C. Powell, Quedley Farm, Flimwell, Kent : s Wardsbrook Duke (2087), d Lophorn (9027), s d Tutsham Goldfinch (1581).

CLASS 80.—*Sussex Heifer, calved in 1910.* [4 entries.]

**I. (£10)** and **R.** for Special\*—W. A. THORNTON, Lock, Partridge Green, Sussex, **Lock Betsy** (13326), born 5th January : s Tutsham Toreador (2016), d Betsy 4th of Lock (11582), s d Prince of Drungewick 3rd (1810).

**II. (£5.)**—J. AUNGIER, Lynwick, Rudgwick, **Lynwick Paley Mabel 1st** (12771), born 4th February : s Masterpiece (2330), d Paley Mabel (9266), s d Autocrat (2020).

**III. (Bronze Medal).**—G. S. HARRIS, Hylands, Hailsham, **Favourite 21st** (13061), born 12th February, bred by — Lucas, Foxhunt Manor : s Orchard-mains Squire (2475), d Foxhunt Ellen (11993), s d Tutsham Squire 2nd (2149).

CLASS 81.—*Sussex Heifer, calved in 1911.* [9 entries.]

**I. (£10.)**—J. AUNGIER, Lynwick, Rudgwick, born 19th January : s Yatton (2306), d Lynwick Fern (9985), s d Sussex (1817).

**II. (£5.)**—W. A. THORNTON, Lock, Partridge Green, Sussex, **Lock Heedless 3rd**, born 18th January : s Ben of Lock (2279), d Penshurst Heedless (8549), s d Young Benares (1702).

**III. (£2.)**—J. BUCHANAN, J.P., Lavington Park, Petworth, **Lavington Gaiety Girl**, born 11th February : s Shillinglee Gold 2nd (2194), d Gaiety Girl 10th (10514), s d Ensign (1584).

**R.**—J. GROVES, Browning's Manor, Blackboys, Sussex, **Browning's Virgin 2nd** (Vol. xxvii), born 17th January : s Shillinglee Duke (2557), d Virgin 72nd (12390), s d Tutsham Squire 2nd (2149).

CLASS 82.—*Sussex Bull, calved in 1908, 1909, or 1910.* [3 entries.]

**I. (£10)** and Special†—W. A. THORNTON, Lock, Partridge Green, Sussex, **Prince 2nd of Lock** (2499), born 6th January, 1908 : s Tutsham Toreador (2016), d Penshurst Heedless (8549), s d Young Benares (1702).

**II. (£5.)**—W. G. FLADGATE, Apsley, Thakeham, Pulborough, Sussex, **Apsley Albert** (254), born 3rd June, 1909 : s Albert 2nd (2052), d Apsley Daisy (9634), s d Rochester Twin (1928).

**III. (Bronze Medal).**—J. BUCHANAN, J.P., Lavington Park, Petworth, **Lavington Gold 7th** (2531), born 2nd January, 1909 : s Shillinglee Gold 2nd (2194), d Gaiety Girl 10th (10514), s d Ensign (1584).

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\* Given by the Sussex Herd Book Society, a Silver Medal for the best Cow or Heifer in Classes 79, 80 or 81.

† Given by the Sussex Herd Book Society, a Silver Medal for the best Bull in Classes 82 or 83.

**CLASS 83.—*Sussex Bull, calved in 1911.* [4 entries.]**

**I. (£10) and R. for Special\*—**W. A. THORNTON, Lock, Partridge Green, Sussex, **Lock Miller 2nd**, born 1st March; s Tutsham Toreador (2016), d Millmaid of Lock (10510), s d Prince of Drungewick 3rd (1810).

**II. (£5.)—**W. T. FREMLIN, Milgate Park, Maidstone, Kent, **Tutsham Hero**, born 3rd January, bred by G. Warde, Tutsham, West Farleigh, near Maidstone, Kent; s Shillinglee Bewbush 5th (2394), d Lady Norah 5th (11592), s d Tutsham Toreador (2016).

**III. (Bronze Medal).**—W. G. FLADGATE, Apsley, Thakeham, Pulborough, **Apsley Bewbush** (Vol. xxvii.), born 6th January; s Shillinglee Bewbush 6th (2400), d Apsley Fairy (10766), s d Silver King (2022).

**R. & V.H.C.—**J. BUCHANAN, J.P., Lavington Park, Petworth, **Lavington Gold 11th**, born 14th January; s Shillinglee Gold 2nd (2194), d Apsley Nora (10144), s d Duke of Drungewick 3rd (1808).

**ABERDEEN-ANGUS.**

(The 1st Prize in Class 84 was given by the English Aberdeen-Angus Cattle Association.)

**CLASS 84.—*Aberdeen-Angus Cow or Heifer, in Milk, calved before 1st December, 1909.* [7 entries.]**

**I. (£10) and R. for Silver Medal†—**J. J. CRIDLAN, Home Farm, Maisemore Park, Gloucester, **Tulip of Standen** (45122), born 23rd February, 1909, bred by Captain Cookson, Chute Standen, Wilts; s Elector of Benton (21814), d Crocus of Standen (37038), s d Elberton (20435).

**II. (£5.)—**DUKE OF RICHMOND AND GORDON, K.G., Goodwood, Chichester, **Marjorie Pride** (41179), born 31st May, 1906, bred by the late Countess of Seafield, Cullen House, Banffshire; d Gentle Pride (30804), s d Eolide (16537).

**III. (£2.)—**G. DRUMMOND, Swaylands House, Penshurst, Kent, **Beretta 2nd of Swaylands**, born 13th January, 1907; s Eboniser (21782), d Beretta of Addington (31099), s d Kilgraston (15610).

**R.—**J. H. BRIDGES, Langshott, Horley, Surrey, **Esterel of Langshott 7th** (43378), born 19th December, 1907; s Perfection of Sands (22420), d Esterel of Langshott (35140), s d Equerry of Ballindallock (9136).

**CLASS 85.—*Aberdeen-Angus Heifer, calved on or after 1st December, 1909.* [8 entries.]**

**I. (£10.)—**SIR G. A. COOPER, BART., Hursley Park, Winchester, **Juana of Hursley** (46812), born 10th January, 1910; s Evolsurus (21908), d Jemima 56th of Morlich (35274), s d Jeshurun (19257).

**II. (£5.)—**J. H. BRIDGES, Langshott, Horley, **Eola of Morlich** (46837), born 3rd February, 1910, bred by G. Cran, Morlich, Glenkridie, N.B.

\* Given by the Sussex Herd Book Society, a Silver Medal for the best Bull in Classes 82 or 83.

† Given by the English Aberdeen Angus Cattle Association, a Silver Medal for the best animal of opposite sex to that awarded the Gold Medal in Classes 84 to 88.

**III. (#2.)**—C. L. PRIOR, Grimblethorpe Hall, Lincoln, **Queen Mary Burgess**, born 6th May, 1910, bred by the Countess of Seafield, Seafield ; s Prince of Ake (24932), d Neat Miss Burgess (42851), s d Ivanhoe of Auchindonie (23319).

**R.**—E. M. EVERSFIELD, Denne Park, Horsham, **Maid of Kinochtry** (47026), born 20th April, 1910, bred by W. S. Ferguson, Perth ; s Gerace of Ballindallock (28100), d Border Maid (41575), s d Elandsgaate (17745).

**CLASS 86.**—*Aberdeen-Angus Heifer, calved on or after 1st December, 1910. [13 entries.]*

**I. (#10)** and Silver Medal\* and **R.** for Gold Medal\*—E. M. EVERSFIELD, Denne Park, Horsham, **Blackbird 2nd of Balthayock**, born 27th March, 1911, bred by R. W. Hill, Balthayock ; s Erino (27997), d Elisa of Willerby (28600), s d Mailbag (13637).

**II. (#5.)**—DUKE OF RICHMOND AND GORDON, K.G., Goodwood, Chichester, **Matild 3rd of Goodwood** (49568), born 5th December, 1910 ; s Ventnor of Hursley (28811), d Mabel 8th of Craighead (34762), s d Juba of Ballindallock (16719).

**III. (#2.)**—J. J. CRIDLAN, Home Farm, Maisemore Park, Gloucester, **Pride of Maisemore 11th** ; s Everwise (24436), d Pride of Maisemore 6th (23510), s d Wizard of Maisemore (21465).

**R. & H.C.**—W. A. SANDEMAN, Morden House, Royston, Herts, **Eolina of Morden** (49632), born 1st January, 1911 ; s Madrono of Morden (28308), d Eolanthé (37448), s d Edelhof (20416).

**H.C.**—SIR G. A. COOPER, BART., Hursley Park, Winchester, **Bellona of Hursley**, born 15th December, 1910 ; s Black for Ever of Ballindallock (25338), d Byzantine Maid (31479), s d Eymund (16572).—J. J. CRIDLAN, **Evergreen 25th** (48369), born 25th December, 1910 ; s Everwise (24436), d Evergreen 12th (38735), s d Prince of Aldbar (22507).

**CLASS 87.**—*Aberdeen-Angus Bull, calved before 1st December, 1910. [7 entries.]*

**I. (#10)** and Gold Medal†—G. DRUMMOND, Swaylands, Penshurst, Kent, **Wildgrave of Ballindallock** (27653), born 28th December, 1906, bred by Sir G. Macpherson Grant, Ballindallock, N.B. ; s Everard of Ballindallock (21902), d Wild Bergamot (37431), s d Delamere (13305).

**II. (#5.)**—SIR G. A. COOPER, BART., Hursley Park, Winchester, **Bandolier of Hursley** (30133), born 10th January, 1910 ; s Black for Ever of Ballindallock (25338), d Blue Bell of Hursley (41818), s d Evolsurus (21908).

**III. (#2.)**—J. J. CRIDLAN, Home Farm, Maisemore Park, Gloucester, **Prince 2nd of Maisemore**, born 20th January, 1910 ; s Everwise (24436), d Pride of Maisemore 2nd (38737), s d Wizard of Maisemore (21465).

\* Given by the Aberdeen-Angus Cattle Society, a Gold Medal, value £10, for the best animal in Classes 84 to 88.

† Given by the Aberdeen-Angus Cattle Society, a Gold Medal, value £10, for the best animal in Classes 84 to 88.



*Prizes awarded to Aberdeen-Angus and Jersey Cattle.* xxxiii

**R. & V.H.C.**—J. H. BRIDGES, Langshott, Horley, Surrey, **Earwig of Glamis** (29053), born 22nd January, 1909, bred by Earl of Strathmore, Glamis Castle, Forfarshire; s Borodino of Glamis (22948), d Edda of Glamis (41306), s d Masterkey (18180).

**CLASS 88.**—*Aberdeen-Angus Bull, calved on or after 1st December, 1910.* [5 entries.]

**I. (£10.)**—J. J. CRIDLAN, Home Farm, Maisemore Park, Gloucester, **Everard 2nd of Maisemore** (31888), born 3rd April, 1911; s Rubelate of Maisemore (28706), d Evergreen 13th (38736), s d Wizard of Maisemore (21465).

**II. (£5.)**—SIR G. A. COOPER, BART., Hursley Park, Winchester, **Patriot of Hursley** (32273), born 1st March, 1911; s Black for Ever of Ballindallock (25338), d Patience of Hursley (41821), s d Evolsurus (21908).

**III. (Bronze Medal.)**—J. J. CRIDLAN, **Proud Esmine of Maisemore** (32451), born 23rd December, 1910; s Proud Erme (28602), d Mabel Pride 2nd of Theakston (44174), s d Examiner of Selaby (19107).

**R. & V.H.C.**—J. J. CRIDLAN, **Prince 3rd of Maisemore** (32405), born 7th January, 1911; s Everwise (24436), d Pride of Maisemore 2nd (38737), s d Wizard of Maisemore (21465).

**JERSEY.**

(The Prizes in Class 89 were given by the English Jersey Cattle Society).

**CLASS 89.**—*Jersey Cow or Heifer, in-Milk, entered in or eligible for entry in the English Jersey Herd Book, bred by Exhibitor, and sired in Great Britain or Ireland.* [10 entries.]

**I. (£5.)**—A. MILLER-HALLETT, Goddington, Chelsfield, Kent, whole, **God-dington Bagatelle** (Vol. xx., p. 317), born 10th April, 1906; s Rover of Oaklands (8348), d Lady Viola (Vol. xvii., p. 336), s d Nobleman (2555).

**II. (£3.)**—J. H. SMITH-BARRY, Stowell Park, Pewsey, Wilts, fawn, **Post Obit**, born 23rd March, 1904; s Gay Boy (7510), d Post Stamp 6th, s d Distinction's Crown (4818).

**III. (£2.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **My Brunette 8th** (Vol. xxi., p. 109), born 13th April, 1909; s General Kenta (9597), d My Brunette (Vol. xiv., p. 322).

**R. & V.H.C.**—J. BRUTTON, 7, Prince's Street, Yeovil, Somerset, dark brown, **Yeovil Lively**, born 9th March, 1909; s Yeovil Sunbeam (9821), d Irish Lass (Vol. xviii. E.J.H.B.), s d Emerald (7797).

**H.C.**—A. POCOCK, Freegrove, Calne, Wilts, broken fawn, **Grove Daffodil**, born 29th January, 1909; s Black Knight (9151), d Beckington Daffodil (Vol. xxi., p. 245), s d Plymouth Boy (9031).—J. H. SMITH-BARRY, fawn, **Mignonette**, born 15th January, 1908; s Oxford Sunbeam (8650), d Marigold, s d Sportive (7037).

**C.**—A. MILLER-HALLETT, whole, **Goddington Salvadora 6th**, born 11th January, 1910; s Golden Noble (9611), d Goddington Salvadora 3rd (Vol. xx., p. 318), s d Jolly Peter (8245).—R. B. WARD, Westwood, Droitwich, whole, **Silken Moon 2nd**, born 1st October, 1908; s Silken Lad (7666), d Havering Moon 5th, s d Why Not.

CLASS 90.—*Jersey Cow, in-Milk, calved before 1909.* [16 entries.]

**I. (210.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **Cute 2nd** (Vol. xxii., p. 278), born 16th March, 1900, bred by P. Guenault, St. Peter's, Jersey; s Clio (7142), d Cute (8574 F.S.H.C.).

**II. (25.)**—A. MILLER-HALLETT, Goddington, Chelshfield, Kent, whole, **Goddington Bagatelle** (Vol. xx., p. 317), born 10th April, 1906; s Rover of Oaklands (8348), d Lady Viola (Vol. xvii., p. 336), s d Nobleman (2555).

**III. (22.)**—A. MILLER-HALLETT, whole, **Honey Lass** (Vol. xxii., p. 328), born 11th July, 1906, bred by H. Lawford, St. Brelades, Jersey; s Shy Lad (3779), d Honeymoon 4th (11882), s d Napoleon Bonaparte (2745).

**R. & V.H.C.**—A. MILLER-HALLETT, whole, **La Franchise 3rd** (Vol. xxii., p. 344), born 14th March, 1907, bred by E. G. D. Renouf, Jersey; s Mabel's Rabign (3722), d La Franchise (9514 F.S.).

**V.H.C.**—J. BRUTTON, 7, Prince's Street, Yeovil, Somerset, light brown, **Irish Lass**, born 12th August, 1904, bred by Mrs. Spencer, Oakhill, Bath; s Emerald (7797), d Arcadia 2nd (Vol. xx., p. 228), s d Duke of Orleans (5868).—J. H. SMITH-BARRY, Stowell Park, Pewsey, fawn, **Heywood Bluebell**, born 16th March, 1906, bred by Lord Ludlow; s Chief Justice (7138), d Dairymaid, s d Logan (7278).

**H.C.**—J. H. SMITH-BARRY, fawn, **Post Obit**, born 23rd March, 1904; s Gay Boy (7510), d Post Stamp 6th, s d Distinction's Crown (4818).—J. BRUTTON, dark brown, **Commodore's Gol. Lily**, born 2nd May, 1905, bred by E. Matthews, Amersham, Bucks; s Commodore (8128), d Gol. Lily 6th (Vol. xx., p. 291), s d Carlo's King (6809).—LORD ROTHSCHILD, broken, **Twylish 11th** (Vol. xxii., p. 438), born 10th February, 1906, bred by C. Fossey, St. Clement's, Jersey; s Mabel's Raleigh (9330), d Twylish (5791 P.S.H.C.), s d Golden Hero (4857).

**C.**—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, whole, **Cherry Queen 3rd**, born 24th April, 1906, bred by P. Lucas, St. Martin's; s Locket's Astor, d Cherry Blossom.—EARL CADOGAN, K.G., whole, **Ghezireh** (Vol. xix., p. 308), born 9th April, 1905, bred by Lady de Rothschild, Aston Clinton, Tring; s President (8664), d Golden Moss (Vol. xvii., p. 307), s d Drummer (5865).—DAME E. F. SMYTH, Ashton Court, Bristol, whole, **Lisette 2nd**, born 23rd July, 1906, bred by J. S. Beaugie, St. Martin's, Jersey; s Combination (8845), d Lisette (9351), s d Hobby (7865).

CLASS 91.—*Jersey Cow or Heifer, in-Milk, calved in 1909.*

[10 entries.]

**I. (210.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, broken, **Mervenia**, born 24th January, bred by G. M. Luce, St. John's, Jersey; s Trinity Sultan (10475), d Carmen 4th (11440 P.S.C.), s d Hamley's Golden Lad (7534).

**II. (25.)**—A. POCOCK, Freegrove, Calne, Wilts, broken, fawn, **Investment** (10499), imported, born 24th March, bred by J. Du Val, St. Peter's, Jersey; s Molly's Combination (10005 E.J.H.B.).

**III. (22.)**—W. R. FLOWER, West Stafford, Dorchester, whole, **Golden Ace 3rd**, born 2nd January, bred by J. C. Le Maistre, Grouville, Jersey; s Prince Bosnian (4082), d Golden Age 2nd (12837).

**R. & V.H.C.**—LORD ROTHSCHILD, whole, **My Brunette 8th** (Vol. xxi., p. 109), born 13th April, 1909; s General Kenta (9597), d My Brunette (Vol. xiv., p. 322).

**V.H.C.**—J. BRUTTON, 7, Prince's Street, Yeovil, Somerset, dark brown, **Yeovil Lively**, born 9th March, 1909; s Yeovil Sunbeam (9821), d Irish Lass (Vol. xviii., E.J.H.B.), s d Emerald (7797).

**H.C.**—A. POCOCK, broken fawn, **Grove Daffodil**, born 29th January, 1909; s Black Knight (9151), d Beckington Daffodil (Vol. xxi., p. 245), s d Plymouth Boy (9031).—Miss TROTTER, Standerwick Court, Frome, whole, dark fawn, **Lazy Lass**, born 17th January, bred by A. Pocock, Freegrove, Calne, Wilts; s Optimus, d Idle Lass, s d Cowslip's Astor.

**C.**—LORD POLTIMORE, Poltimore Park, Exeter, whole, **Poppy**, born 12th July; s Trojan (9803), d Pretty Princess, s d Pilot's Sultan (7618).

CLASS 92.—*Jersey Heifer, in-Milk, calved in or since 1910.*

[9 entries.]

**I. (£10.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **Bloomfield Belle 2nd**, born 7th February, 1910, bred by J. P. Le Gros, Trinity, Jersey; s Halburton's Sultan, d Bertine 3rd (11441 P.S.C.), s d Golden Maid's Prince.

**II. (25.)**—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, broken, **Noble Image**, born 19th March, 1910; s Noble of Oaklands (9366), d Statuette (Vol. xxi., p. 246), s d Golden Maid's Prince (7836).

**III. (22.)**—H. WALKER, Beach, Bitton, Glos., self, **Sweet Bread 26th**, born 10th January, 1910, bred by J. Hamon, Trinity, Jersey; s Expectation Prince (4240 P.S.H.C.), d Sweet Bread 18th (14518) P.S.H.C.), s d Mabel's Raleigh (3722 P.S.H.C.).

**R. & H.C.**—LORD DECIES, Sefton Park, near Slough, Bucks, whole, tongue and switch black, **Belvoir 5th**, born, 7th February, 1910, bred by J. E. Syvret, St. Ouen, Jersey; s Composer (4142), d Belvoir 3rd (14567), s d Monster.

**H.C.**—A. MILLER-HALLETT, Goddington, Chelsfield, Kent, whole, **Goddington Salvadora 6th**, born 11th January, 1910; s Golden Noble (9611), d Goddington Salvadora 3rd (Vol. xx., p. 318), s d Jolly Peter (8245).

**C.**—W. M. CAZALET, Fairlawne, Tonbridge, whole, **Plymouth Juliette**, born 4th February, 1910, bred by J. P. Dreland, Trinity, Jersey; s Plymouth Lad (9388), d Juliette 13th (11584).—LORD POLTIMORE, Poltimore Park, Exeter, broken, **Flora**, born 12th May, 1910; s Distinction Noble 2nd (9889), d La Chasse Fawny.

CLASS 93.—*Jersey Heifer, calved in 1911.* [21 entries.]

**I. (£10.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **Chief Lady**, born 5th March, bred by F. Le Vesconte, Grouville, Jersey; s Fontaine's Chief (10242), d Happy Lady (10210 P.S.C.H.), s d Chamberlain (8111).

**II. (25.)**—A. MILLER-HALLETT, Goddington, Chelsfield, Kent, broken, **Goddington Petune**, born 25th May; s Oxford You'll Do (4075), d Petune's Baby (Vol. xxii., p. 390), s d Benedictine's Boy (3989).

**III. (22).—**MRS. EVELYN, Wotton House, Dorking, Surrey, whole, **Wotton Omelette**, born 15th May; s Pavillon's Noble (10035), d Wotton Easter Egg, s d Mourier's Sultan (J.H.B., 4158).

**R. & V.H.C.—**A. POCOCK, Freegrove, Calne, Wilts, broken fawn, **Honeydew**, born 30th July; s Spanker (10455), d Barley Sugar (Vol. xxiii.), s d Optimus, (9013).

**V.H.C.—**W. M. CAZALET, Fairlawne, Tonbridge, broken, **Garnet**, born 26th June; s Royal Lord (10429), d Les Marais Gem.—J. H. SMITH-BARRY, Stowell Park, Pewsey, Wilts, fawn, **Moonstone**, born 9th July; s Redruth (10407), d Mammet, s d Golden Dream (9247).

**H.C.—**J. BRUTTON, 7, Princes Street, Yeovil, Somerset, fawn, **Yeovil Bantam**, born 11th April; s Silver Stick (10445), d Easter Egg (Vol. xix., p. 290), s d Admiral Togo (3561).—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, whole, **Honey Bee**, born 29th March; s Elderberry's Lord (9897), d Queen Bee (Vol. xxi., p. 402), s d Topper (8393).—W. M. CAZALET, broken, **Eva**, born 15th April; s Oakland's Glory (9370), d Egoistic Daisy, s d Galopin (9240).—DAME E. F. SMYTH, Ashton Court, Bristol, whole, **Rochelle**, born 28th May; s Rochell's Lass Boy, d Lisette 3rd (Vol. xx., p. 360), s d Noble of Oaklands.

**C.—**SIR J. M. F. FULLER, BART., K.C.M.G., Jaggard's Farm, Corsham, broken, **Jaggard's Pearl**, born 17th June; s Jaggard's Stockwell (10296), d Gem of Aston Clinton, s d Stormer (9431).—A. MILLER-HALLETT, whole, **Goddington Plaisanterie 3rd**, born 28th May; s Goddington Winks (10253), d Goddington Plaisanterie (Vol. xxii., p. 314), s d Blue Sultan (8806).—DAME E. F. SMYTH, whole, **Dame Emily**, born 20th April, bred by H. B. Napier, Long Ashton, Bristol; d Monista's Lady, s d Trial 2nd of Oaklands.—EARL TEMPLE, Newton Fox, Bristol, whole, **Forget-me-Not**, born 31st July; s Lucerne's King, d Foxglove, s d Godig Golden Fox (8909).

#### CLASS 94.—*Jersey Bull, calved in 1908 or 1909. [6 entries.]*

**I. (210) and Special (210 10s.).\*—**A. MILLER-HALLETT, Goddington, Chelsfield, Kent, broken, **Goddington Winks** (10253), born 31st July, 1908; s Honest Lad (3756), d Young Winks 4th (Vol. xx., p. 459), s d Flower's Hero (3502).

**II. (25).—**A. POCOCK, Freegrove, Calne, Wilts, whole (dark), **Spanker**, born 6th April, 1909, bred by Captain Spicer, Spye Park, Chippenham, Wilts; s Sheriff (9770), d Eileen, s d Bismark's Boy (6786).

**III. (22).—**LORD POLTIMORE, Poltimore Park, Exeter, whole, **Likely Lad**, born 14th July, 1909, bred by the late Lady Rothschild; s Stormer (9231), d Lady Dora 3rd, s d Jester (7551).

**R. & C.—**W. M. CAZALET, Fairlawne, Tonbridge, whole, **Highness**, born 3rd December, 1909, bred by F. D. Helleur, St. Lawrence, Jersey; s Rosebay's Prince (10424), d Golden Atalanta (14409).

**C.—**H. WALKER, Beach, Bitton, Glos., whole colour, **Una's Fairy Boy**, born 18th April, 1909, bred by J. du Fresne, Trinity, Jersey; s Raleigh's Fairy Boy (3851), d Alfriston Una 2nd (13195).

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\* Given by the Royal Jersey Agricultural Society, for the best Bull in Class 94, 95 or 96, whose dam has won a prize or certificate of merit in any Butter Test Competition recognised by the English Jersey Cattle Society.

**CLASS 95.—*Jersey Bull, calved in 1910.* [8 entries.]**

**I. (♂10.)**—A. MILLER-HALLETT, Goddington, Chelsfield, Kent, broken, **Goddington Noble 2nd** (10252), born 29th April; s Goddington Winks (10253), d Goddington Bagatelle (Vol. xx., p. 317), s d Rover of Oaklands (8348).

**II. (♂5.)**—A. MILLER-HALLETT, nearly whole, **Golden Chance's Noble** (10256), born 20th April, bred by the Asylum Committee, St. Saviour's, Jersey; s Noble of Oaklands (9366), d Golden Chance 4th (11578), s d Agatha's Flying Fox (3256).

**III. (♂2.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **Fontaine's Star**, born 10th April, bred by W. J. Labey, Grouville, Jersey; s Fontaine's Chief (10242), d Fontaine's Dove (13156), s d Mabel's Raleigh (9330).

**R. for Special\*.**—A. POCKOCK, Freegrove, Calne, Wilts, whole fawn, **Freegrove Minister**, born 21st April; s Prime Minister (10052), d Freegrove Lily (Vol. xix., p. 305), s d Speculative (3376).

**R. & H.C.**—LORD DECIES, Sefton Park, near Slough, Bucks, broken, **Rozel's Noble 2nd**, born 14th April, bred by C. Renouf, St. Martin's, Jersey; s Noble of Oaklands, d Rozel Maid 3rd, s d Pearl King.

**C.**—LORD POLTIMORE, Poltimore Park, Exeter, whole, **Braga**, born 19th September; s Distinction Noble 2nd, (9889), d Havering Beauty, s d Brompton (7118).—DAME E. F. SMYTH, Ashton Court, Bristol, fawn, **Pearl's Noble**, born 22nd March, bred by C. Le Sueur, Grouville, Jersey; s Noble of Oaklands, d Pearl 5th, s d Morny Cannon.

**CLASS 96.—*Jersey Bull, calved in 1911.* [21 entries.]**

**I. (♂10.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, whole, **Merry Mike**, born 18th April, bred by J. Le C. Arthur, St. Mary's, Jersey; s Pointer, d Upland Belle 21st (14059 P.S.C.), s d Benedictine's Jockey (9146).

**II. (♂5.)**—LORD ROTHSCHILD, whole, **Raleigh's Chief**, born 26th March, bred by G. England, St. Saviour's, Jersey; s Fontaine's Chief (10242), d Raleigh's Pelerine (12254 P.S.C.), s d Raleigh (7974).

**III. (♂2.)**—DAME E. F. SMYTH, Ashton Court, Bristol, whole, **Luby**, born 11th July; s Rochettes Lass Boy, d Lulu, s d Rubens.

**R. & H.C.**—SIR E. STERN, Fan Court, Chertsey, Surrey, whole, **La Chasse Peer**, born 18th March, bred by P. Le Brocq, La Chasse, St. Ouen's, Jersey; s Violette Peer (4439 H.C.P.S.), d Halloween (9703 H.C.P.S.), s d Favori (2943 H.C.P.S.).

**H.C.**—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, whole, **Rozel's Warrior**, born 13th February, bred by J. Pallot, Trinity; s Rozel's Sultan, d Rozel's Pet 17th, s d Iris Duke.—W. M. CAZALET, Fairlawne, Tonbridge, whole, **Fiddler**, born 14th April; s Oakland's Glory (9370), d Fideles (F.S.C.).—LORD POLTIMORE, Poltimore Park, Exeter, broken, **Pipsqueak**, born March; s Distinction Noble 2nd (9889), d Playful, s d Jester (7551).

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\* Given by the Royal Jersey Agricultural Society, for the best Bull in Class 94, 95 or 96, whose dam has won a prize or certificate of merit in any Butter Test Competition recognised by the English Jersey Cattle Society.

**C.**—SIR J. M. F. FULLER, BART., K.C.M.G., Jaggard's Farm, Corsham, broken, **Octavia's Jolly Sultan**, born 2nd February, bred by J. Du Val, St. Peter's, Jersey; s Noble's Jolly Sultan (10022), d Lady Octavia (12822), s d Golden Champion (3334).

## GUERNSEY.

(The 1st Prize in Class 97 was given by the English Guernsey Cattle Society).

### CLASS 97.—*Guernsey Cow, in-Milk, calved before 1909.* [7 entries.]

**I. (£10.)**—SIR E. A. HAMBRÖ, Hayes Place, Hayes, Kent, fawn and white, **Hayes Golden Cherry 3rd**, born 23rd July, 1906; s Hayes Royal (1674), d Golden Cherry (5118).

**II. (£5.)**—J. P. MORGAN, Dover House, Rochampton, S.W., fawn and white, **Deanie 16th**, born 14th July, 1907, bred by T. R. Gallienne, The Pouchez, Castel, Guernsey; s Galaxy's Sequel (1539 P.S., R.G.A.S.), d Deanie 12th (4699 P.S., R.G.A.S.).

**III. (£2.)**—J. P. MORGAN, red and white, **Flora 5th of the Effards**, born 10th August, 1908, bred by F. Le Parmentier, Les Effards, Castel, Guernsey; s Raymond of the Preel 2nd (1877 P.S., R.G.A.S.), d Flora 2nd of the Effards (6121 P.S., R.G.A.S.).

**R.**—H. F. PLUMPTRE, Goodnestone Park, Canterbury, fawn and white, **Lottie 1st of La Hougue** (6974), born 14th November, 1903, bred by J. B. Choffins, St. Saviour's, Guernsey; s William Rufus (1377 P.S., R.G.A.S.), d Lottie of Les Choffins (2398, F.S., R.G.A.S.), s d Royal Blood 4th (1086 P.S.).

### CLASS 98.—*Guernsey Heifer, in-Milk, calved in 1909.* [4 entries.]

**I. (£10.)**—SIR J. H. B. D. TICHBORNE, BART., Tichborne Park, Alresford, Hants, fawn and white, **Tregonning Fussie** (8751), born 27th March, 1909, bred by J. Wills, Higher Treleggan, Constantine; s Brave Lad (1546), d Trewine Fussie (5687), s d Trewine King (1355).

**II. (£5.)**—G. F. FERRAND, Morland Hall, Alton, Hampshire, fawn and white, **Hawkey Golden Rose** (8542), born 8th December, bred by C. W. Browning, Les Mourants, St. Andrew's, Guernsey; s Gay Lad du Braye (2026 P.S., R.G.A.S.), d Golden Rose (3287 F.S., R.G.A.S.).

**III. (£2.)**—MRS. F. COOKSON, Chute, Standen, Andover, fawn and white, **Polly of Standen 1st**, born 4th October; s Fleur-de-Lys (1565), d Polly of the Isles 4th.

**R.**—H. F. PLUMPTRE, Goodnestone Park, Canterbury, fawn and white, **Polly of the Isles 10th** (8206), born 4th October; s Golden Noble (1930), d Polly of the Isles 6th (7042), s d Suzerain (1252).

### CLASS 99.—*Guernsey Heifer, calved in 1910.* [3 entries.]

**I. (£10.)**—J. C. FORSTER, Clatford Mills, Andover, red and white, **Clatford Meadow Sweet 2nd** (8401 E.G.H.B.), born 9th March, bred by J. P. Gallichan, Alderney; s Prince (58 P.S., R.G.A.S.), d Judy (412 F.S., R.G.A.S.).

**II. (£5.)**—SIR J. H. B. D. TICHBORNE, BART., Tichborne Park, Alresford, Hants, fawn and white, **Itchen May Rose 5th** (8572), born 9th June; s Itchen Dairyman (2039), d Itchen May Rose 2nd (7313).

**CLASS 100.—Guernsey Heifer, calved in 1911. [18 entries.]**

**I. (£10.)**—G. OAKEY, Brittleware Farm, Charlwood, Surrey, fawn and white, **Jasmine**, born 8th June; s Admiral of the Brigget (2116), d Brittleware Daisy (7532).

**II. (£5.)**—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, orange and white, **Elfordleigh Beautiful**, born 17th April; s Raymond of the Preel 4th (late Mike), (1911 P.S., R.G.A.S.), d Beauty of King's Mills Lodge (G.H.B., 3335 F.S.).

**III. (£2.)**—G. OAKEY, fawn and white, **Sweet Briar**, born 22nd July; s Admiral of the Brigget (2116), d Brittleware Maud (6791).

**R.** —MRS. C. L. HERBERT, Clytha Park, Abergavenny, red and white, **Clytha Beauty**, born 20th May; s Hever Prince (1937), d Beauty Mills 2nd, s d Governor of the Chine (1297 P.S.).

**V.H.C.**—MRS. C. L. HERBERT, light red, **Clytha Betty**, born 14th February; s Hever Prince (1937), d Merton Ginella 2nd (5915), s d Merton King (1397).

—SIR J. H. B. D. TICHBORNE, BART., Tichborne Park, Alresford, Hants, fawn and white, **Itchen Carnation 4th** (entered for Vol. xxviii., E.G.H.B.), born 6th May; s Itchen Red Raider (2042), d Itchen Carnation (5846), s d Rival (1353).

**H.C.**—SIR E. A. HAMBRO, Hayes Place, Hayes, Kent, fawn and white, **Hayes Wena 4th**, born 19th February, 1911; s Hayes Coronation 3rd, d Wena. —J. P. MORGAN, Dover House, Rochampton, S.W., fawn and white, **Nellie 2nd of the Jaonnets**, born 24th July, bred by A. Le Reuz, Les Jaonnets, St. Saviour's, Guernsey; s Darby (2256 P.S., R.G.A.S.), d Nellie of the Jaonnets (4329 F.S., R.G.A.S.).

**C.** —MRS. R. C. BAINBRIDGE, fawn, **Elfordleigh Viola**, born 5th March, bred by the Earl of Mount Edgcumbe, Cothele, St. Dominic, Cornwall; s Fleuries Lad (2265 E.G.H.B.), d Cotehele Viola (7597).—H. F. PLUMPTRE, Goodnestone Park, Canterbury, fawn and white, **Lady Muriel**, born 20th May; s Lord Royal (2054), d Muriel 22nd (7025), s d Roland of Seaview 10th (1621).

**CLASS 101.—Guernsey Bull, calved in 1908 or 1909. [3 entries.]**

**I. (£10.)**—COL. H. W. SHAKERLEY, Enham Place, Andover, red and white, **Raymond des Veangue**, born 13th June, 1909, bred by J. Sherwill, St. Peter's Port, Guernsey; s Raymond of the Preel 6th, d Nelly of the Veangue.

**II. (£5.)**—T. R. BOLITHO, Trengwainton, Penzance, Cornwall, orange and white, **Good Friday**, born 9th April, 1909, bred by G. Blight, Tregonning, Breage, Cornwall; s Golden Hero of the Vauxbelets (1929), d Darling (7224), s d Romulus.

**III. (Bronze Medal).**—G. F. FERRAND, Morland Hall, Alton, Hants, fawn and white, **Chieftain of Hawkey** (2238), born 14th December, 1909, bred by P. Mahy, Pulias, St. Sampson's, Guernsey; s Galaxy's Sequel (1539 P.S., R.G.A.S.), d Dolly of Pulias (3480 F.S., R.G.A.S.).

**CLASS 102.—Guernsey Bull, calved in 1910. [8 entries.]**

**I. (£10.)**—SIR E. A. HAMBRO, K.C.V.O., Hayes Place, Hayes, Kent, red and white, **Hayes Cherub 2nd**, born 22nd June; s Hayes Branch, d Hayes Gold Cherry 3rd.

**II. (£5.)**—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, orange and white, **Raymond's Joe** (2362), born 30th April, bred by J. Le Page, Neuve Maison, Castel, Guernsey; s Raymond of the Preel 4th (late Mike), (1911 P.S., R.G.A.S.), d Bon Espoir 9th (4545 P.S., R.G.A.S.).

**III. (£2.)**—MRS. C. L. HERBERT, Clytha Park, Abergavenny, light red, **Moss Raider 2nd**, born March, bred by H. F. Plumptre, Goodnestone Park, Canterbury; s Moss Raider (1871), d No. 6252 (G.H.B.).

**R. & V.H.C.**—J. P. MORGAN, Dover House, Roehampton, S.W., fawn and white, **Roehampton Comte de Paris 2nd** (2364), born 27th April; s Clatford Comte de Paris (1812), d Lily of the Preel (5532), s d King Edward (1291 R.G.A.S.).

**V.H.C.**—T. R. BOLITHO, Trengwainton, Penzance, Cornwall, orange and white, **Trengwainton Golden Knight**, born 19th April; s Golden Hero of the Vauxbelets (1929), d Godolphin Ida 2nd, s d Godolphin Colonel (1748).

**H.C.**—MRS. F. COOKSON, Chute Standen, Andover, orange and white, **Plausible of Standen**, born 7th October; s Warden King, d Polly of the Isles 4th. —H. F. PLUMPTRE, Goodnestone Park, Canterbury, fawn and white, **Fleur-de-Lys 5th** (2264), born 15th June; s Fleur-de-Lys 2nd (2017), d Gulnare 19th (7286), s d Antonio (1733).

**C.**—SIR E. A. HAMBRO, K.C.V.O., Milton Abbey, Blandford, Dorset, fawn and white, **Milton Gay Boy** (2339 E.G.H.B.), born 30th September; s Gay Boy (2020 E.G.H.B.), d Milton Water Lily 4th (7387 E.G.H.B.).

**CLASS 103.—Guernsey Bull, calved in 1911. [10 entries.]**

**I. (£10.)**—SIR E. A. HAMBRO, Hayes Place, Hayes, Kent, fawn and white, **Hayes Golden Prince**, born 11th May; s Hayes Coronation 3rd, d Hayes Golden Cherry 3rd.

**II. (£5.)**—T. R. BOLITHO, Trengwainton, Penzance, Cornwall, orange and white, **Trengwainton Golden Prince**, born 23rd June; s Golden Hero of the Vauxbelets (1929), d Tregonning Darling (7903), s d Tregonning King (1792).

**III. (£2.)**—J. P. MORGAN, Dover House, Roehampton S.W., fawn and white, **Roehampton Polo 3rd**, born 19th April; s Polo 3rd of the Vauxbelets (2174), d Rose of the Effards (7454), s d Royal Blood 6th (1261 R.G.A.S.).

**R.**—C. E. J. ESDAILE, Cothelstone House, Taunton, light red, **Pendant**, born 29th August, bred by H. G. Blackwood, Monkton House, Taunton; s Billy of the Val 3rd, d Wickham Jewel (6757).

**V.H.C.**—G. F. FERRAND, Morland Hall, Alton, Hampshire, fawn and white, **Eureka**, born 2nd February, bred by J. le Page, Le Briquet, St. Saviour's, Guernsey; s Robert's Boy (2275 P.S., R.G.A.S.), d Langlois Primrose 2nd (7347 P.S., R.G.A.S.). —J. P. MORGAN, Dover House, Roehampton, S.W., fawn and white, **Roehampton Governor 2nd**, born 14th June; s Governor of the Chene (1297 P.S., R.G.A.S.), d Deanie 16th, s d Galaxy's Sequel (1539 P.S., R.G.A.S.).

**H.C.**—SIR E. A. HAMBRO, red and white, **Hayes Fido 2nd**, born 18th October; s Hayes Fido (2146), d Hayes Rosina (8557).

**C.**—G. OAKLEY, Brittleware Farm, Charlwood, Surrey, fawn and white, **Brittleware Robin 2nd**, born 6th August; s Brittleware Robin (2001), d Brittleware Poppy (7555).



**KERRY.**

**CLASS 104.—Kerry Cow or Heifer, in-Milk, calved in or before 1909.**  
[7 entries.]

**I. (£10) and Special\*—**L. CURRIE, Minley Manor, Farnborough, Hants, **Duv Rosebud** (3418), born 10th December, 1906, bred by J. Neill, The Park, Killarney; s Duv Daniel (590), d Duv Divine (3231).

**II. (£5.)—**L. CURRIE, **Minley Mistress** (1253 F.S.), born 1908.

**III. (£2.)—**LADY GREENALL, Walton Hall, Warrington, **Walton Fame** (entered for next Volume), born 1908.

**R.—**LADY GREENALL, **Walton Dewdrop** (1053), born 1906.

**CLASS 105.—Kerry Heifer calved in 1910 or 1911.** [2 entries.]

**I. (£10.)—**LADY GREENALL, Walton Hall, Warrington, **Walton Fancy**, born 1910.

**II. (Silver Medal).—**MARQUIS OF LANSDOWNE, K.G., Bowood Park, Calne, Wilts, **Iris**, born 4th November, 1910.

**CLASS 106.—Kerry Bull, calved in 1909, 1910, or 1911.** [2 entries.]

**I. (£10.)—**T. WAITE, Highlands, Redhill, Surrey, **La Mancha Mr. Dooley**, born 7th May, 1909, bred by J. Hilliard, Killarney; s Duke 9th of Carton (643), d Castlelough Sloe (3584), s d Killeaghy (550).

**II. (Silver Medal).—**LADY GREENALL, Walton Hall, Warrington, **Walton Diver**, born 27th September, 1910; s La Mancha Diver (214), d Walton Housemaid (1330).

**DEXTER KERRY.**

**CLASS 107.—Dexter Kerry Cow or Heifer, in-Milk, calved in or before 1909.** [7 entries.]

**I. (£10.)—**HON. MRS. C. PORTMAN, Goldicote, Stratford-on-Avon, red, **La Mancha Hard to Find** (1238), born 9th April, 1904, bred by R. T. Robertson, La Mancha, Malahide, Dublin; s La Mancha What Next (279), d La Mancha Dolly Day Dream (1185).

**II. (£5.)—**B. DE BERTODANO, Cowbridge House, Malmesbury, Wilts, black, **Cowbridge Joan** (H.B. 1753), born in 1908.

**III. (£2.)—**MRS. E. MORANT, Brokenhurst Park, Hants, black, **Harley Coy** (1655), born 11th May, 1907, bred by G. Habgood, Harley Lodge, Wimborne; s Kingswood Comely Boy (264), d Harley Signorina (1145), s d Great Malvern (178).

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\* Given by B. de Bertodano, Esq., for the best animal in Classes 104, 105 or 106, to which the Cup had not previously been awarded. The Bertodano Challenge Cup, value 25 guineas. The Cup to become the property of an Exhibitor winning it three years in succession. The English Kerry and Dexter Cattle Society will present a Silver Medal to the owner of the winning animal on each occasion the cup is competed for.

**R.**—H. M. GIBBS, Barrow Court, near Bristol, black, **Barrow Duchess 4th** (1663), born 29th June, 1908 ; s Barrow Guy Fawkes (384), d Barrow Duchess 2nd (1297), s d Compton Dan (213).

CLASS 108.—*Dexter Kerry Heifer, calved in 1910 or 1911.*  
[8 entries.]

**I. (£10.)**—HON. MRS. C. PORTMAN, Goldicote, Stratford-on-Avon, red, **Goldicote Pearl**, born 2nd May, 1910 ; s Jupiter (435), d La Mancha Hard to Find (1238), s d La Mancha What Next (279).

**II. (£5.)**—B. DE BERTODANO, Cowbridge House, Malmesbury, Wilts, black, **Cowbridge Coquette 2nd** (Vol. xii.), born 1st July, 1910 ; s Cowbridge Snow-boy (H.B. 404), d Cowbridge Coquette (H.B. 1379).

**III. (£2.)**—HON. MRS. C. PORTMAN, black, **Black Child**, born August, 1910.

**R.**—REV. R. L. SIMKIN, Down Ampney Vicarage, Cricklade, black, **Oakridge Chase 2nd**, born 20th September, 1910 ; s Cowbridge Sunny Boy (382), d Oakridge Chase (1637), s d Malvern Toper (306).

CLASS 109.—*Dexter Kerry Bull, calved in 1909, 1910 or 1911.*  
[9 entries.]

**I. (£10.)**—B. DE BERTODANO, Cowbridge House, Malmesbury, Wilts, black, **Cowbridge Hero** (Vol. xii), born March, 1909.

**II. (£5) and Special\***—B. DE BERTODANO, black, **Cowbridge Ivor** (Vol. xii.), born 1st August, 1910 ; s Cowbridge General (H.B. 385), d Cowbridge Ena (H.B. 1383), s d Little Ivor (H.B. 336).

**III. (£2.)**—HON. MRS. C. PORTMAN, Goldicote, Stratford-on-Avon, black, **Shamrock**, born 29th April, 1910 ; s Galtee More (517), d Souvenir (1635).

**R.**—MRS. E. MORANT, Brokenhurst Park, Hants, black, **Gort Ned 2nd**, born 24th January, 1910, bred by D. M. Rattray, Baleybunion, co. Cork ; s Gort Ned (549), d Gort Sally, s d Gort Jim (470).

**V.H.C. and R. for Special\***—MRS. LEATHAM, The Manor, Bagedon, Cirencester, black, **Manager**, born 22nd April, 1911 ; s Cowbridge General, d Hinton Mary, s d Simon.

**V.H.C.**—HON. MRS. C. PORTMAN, black, **La Mancha Dandy**, born May, 1910.

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\* Given by the English Kerry and Dexter Cattle Society. The Devonshire Challenge Cup, for the best animal in Classes 107 to 110, bred by Exhibitor, and entered in or eligible for the English Kerry and Dexter Herd Book. The cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.

A Silver Medal will be presented to the owner of the winning animal on each occasion the Cup is competed for.

(The Prizes in Class 110 were given by the English Kerry and Dexter Cattle Society).

**CLASS 110.**—*Dexter Kerry Bull, calved in 1911, whose sire and dam were entered in the English Kerry and Dexter or Royal Dublin Society's Herd Book.* [6 entries.]

**I. (£10.)**—MRS. LEATHAM, The Manor, Bagendon, Cirencester, black, **Manager**, born 22nd April, 1911; s Cowbridge General, d Hinton Mary, s d Simon.

**II. (£3.)**—H. M. GIBBS, Barrow Court, near Bristol, black, **Barrow Challenger**, born 16th April; s Harley (Chieftain (433), d Marston Ruby (1613), s d Marston Boniface (334).

**III. (£2.)**—B. DE BERTODANO, Cowbridge House, Malmesbury, Wilts, red, **Cowbridge Dante** (Vol. xii), born 28th April; s Cowbridge Sir Dandy (H.B. 428), d Cowbridge Dinah (H.B. 1750), s d Cowbridge General (H.B. 385).

**R.**—REV. R. L. SIMKIN, Down Ampney Vicarage, Cricklade, black, **Oakridge Marston**, born 30th June, bred by J. P. Bulley, Marston Hill, Fairford; s Cowbridge Sunny Boy (382), d Marston (ypria 7th (1783), s d Marston Boniface (344).

**H.C.**—MRS. E. MORANT, Brokenhurst Park, Hants, black, **Brian Boru**, born 18th November, bred by G. Habgood, Harley Lodge, Wimborne; s Harley Conqueror (434), d Harley Crocus, s d Kingwood (Comely Boy (264).

## DAIRY.

(The Prizes in Class 111 were given by the Somerset County Agricultural Association.)

**CLASS 111.**—*Shorthorn or Cross-Bred Dairy Cow of any age.* [2 entries.]

**I. (£5.)**—J. EVENS, Burton, near Lincoln, Lincoln Red Shorthorn, **Rosemary**, 8 years, bred by the late Col. Thorpe, Coddington.

**CLASS 112.**—*Cow, in-Milk, of any breed or cross, under 900 lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration.* [20 entries.]

**I. (£10.)**—J. BRUTTON, 7, Prince's Street, Yeovil, Somerset, light brown Jersey, **Irish Lass**, born 12th August 1904, bred by Mrs. Spencer, Oakhill, Bath; s Emerald (7797), d Arcadia 2nd (Vol. xx., p. 228), s d Duke of Orleans (5868).

**II. (£5.)**—J. H. SMITH-BARRY, Stowell Park, Pewsey, Wilts, fawn Jersey, **Post Obit**, born 23rd March, 1904; s Gay Boy (7510), d Post Stamp 6th, s d Distinction's Crown (4818).

**III. (£2.)**—J. H. SMITH-BARRY, fawn Jersey, **Mignonette**, born 15th January, 1908; s Oxford Sunbeam (8650), d Marigold, s d Sportive (7037).

**C.**—J. BRUTTON, dark brown Jersey, **Commodore's Gol. Lily**, born 2nd May, 1905, bred by E. Mathews, Amersham, Bucks; s Commodore (8128), d Gol. Lily 6th (Vol. xx., p. 291), s d Carlo's King (6809).—MRS. EVELYN, Wotton House, Dorking, Surrey, whole Jersey, **Sweet Daisy**, born 26th October, 1907, bred by E. J. Le Brun, Jersey; s Handyman (3940), d Ulmi 2nd (11373).

**CLASS 113.**—*Cow, in-Milk, of any breed or cross, 900 lbs. live weight or over, yielding the largest quantity of milk of normal character, containing at each time of milking 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration.* [20 entries.]

**I. (£10.)**—G. W. STARK, Forge Farm, Cacrleon, red and white cross-bred, **Dewspot**, born 14th May, 1904.

**II. (£5.)**—J. EVENS, Burton, near Lincoln, Lincoln Red Shorthorn, **Rosemary**, 8 years, bred by the late Col. Thorpe, Coddington.

**III. (£2.)**—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, whole Jersey, **Ghezireh** (Vol. xix., p. 308), born 9th April, 1905, bred by Lady de Rothschild, Aston Clinton, Tring; s President (8664), d Golden Moss (Vol. xvii., p. 307), s d Drummer (5865).

**R.**—J. H. SMITH-BARRY, Stowell Park, Pewsey, fawn Jersey, **Heywood Bluebell**, born 16th March, 1906, bred by Lord Ludlow; s Chief Justice (7138), d Dairymaid, s d Logan (7278).

## BUTTER TEST.

(The Prizes in Class 114 were given by the English Jersey Cattle Society, and entries in them were subject to any conditions issued by that Society previous to the tests.)

**CLASS 114.**—*Cow, eligible for or entered in the English Jersey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Jersey Cattle Society.*

*Certificates of Merit were awarded to Cows reaching the E.J.C.S. Standard of Merit.*

**I. (Gold Medal or £10.)**—J. BRUTTON, 7, Prince's Street, Yeovil, Somerset, light brown Jersey, **Irish Lass**, born 12th August, 1904, bred by Mrs. Spencer, Oakhill, Bath; s Emerald (7797), d Arcadia 2nd (Vol. xx., p. 228), s d Duke of Orleans (5868).

**II. (Silver Medal or £5.)**—J. H. SMITH-BARRY, Stowell Park, Pewsey, Wilts, fawn Jersey, **Post Obit**, born 23rd March, 1904; s Gay Boy (7510), d Post Stamp 6th, s d Distinction's Crown (4818).

**III. (Bronze Medal or £3.)**—LORD ROTHSCHILD, Tring Park, Tring, Herts, broken Jersey, **Twylish 11th** (Vol. xxii., p. 438), born 10th February, 1906, bred by C. Fossey, St. Clement's, Jersey; s Mabel's Raleigh (9330), d Twylish (5791 P.S.H.C.), s d Golden Hero (4857).

**Certificate of Merit.**—J. H. SMITH-BARRY, fawn Jersey, **Mignonette**, born 15th January, 1908; s Oxford Sunbeam (8650), d Marigold, s d Sportive (7037).—R. B. WARD, Westwood, Droitwich, whole Jersey, **Silken Moon 2nd**, born 1st October, 1908; s Silken Lad (7666), d Havering Moon 5th, s d Why Not.—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds, whole Jersey, **Ghezireh** (Vol. xix., p. 308), born 9th April, 1905, bred by Lady de Rothschild, Aston Clinton, Tring; s President (8664), d Golden Moss (Vol. xvii., p. 307), s d Drummer (5865).—W. M. CAZALET, Fairlawne, Tonbridge, whole Jersey, **Golden Atalanta**, born 20th September, 1907, bred by J. F. Piognard, St. Lawrence, Jersey; s Oaklands Sailor (3859), d Atalanta.—J. H. SMITH-BARRY, fawn, **Heywood Bluebell**, born 16th March, 1906, bred by Lord Ludlow; s Chief Justice (7138), d Dairymaid, s d Logan (7278).—MRS. EVELYN, Wotton House, Dorking, Surrey, whole Jersey, **Sweet Daisy**, born 26th October, 1907, bred by E. J. Le Brun, Jersey; s Handyman (3940), d Ulmi 2nd (11373).—MRS. EVELYN, whole Jersey, **Bullfinch**, born 9th July, 1907; s John Bull (8243), d Duckwing (Vol. xv., p. 270), s d Chorister (6815).

(The Prizes in Class 115 were given by the English Guernsey Cattle Association.)

**CLASS 115.**—*Guernsey Cow or Heifer, entered in the English Guernsey Cattle Society's Herd Book, or eligible and tendered for entry therein, obtaining the greatest number of points by the practical test of the churn, the points to be reckoned on the weight of Butter and an allowance for lactation to be made under the scale settled by the English Guernsey Cattle Society.* [7 entries.]

**I. (£10.)**—SIR J. H. D. TICHBORNE, BART., Tichborne Park, Alresford, Hants. fawn and white, **Itchen Polly** (8118), born 6th February, 1907, bred by E. M. Le Page, St. Andrews; s Sir Jacques 2nd (1170 P.S.), d Polly 1st of the Beau-lieu (2792 P.S.).

**II. (£5.)**—SIR E. A. HAMBRO, Hayes Place, Hayes, Kent, fawn and white, **Hayes Golden Cherry 3rd**, born 23rd July, 1906; s Hayes Royal (1674), d Golden Cherry (5118).

**III. (£3.)**—J. P. MORGAN, Dover House, Rochampton, S.W., fawn and white, **Deanie 16th**, born 14th July, 1907, bred by T. R. Gallienne, The Poucher, Castel, Guernsey; s Galaxy's Sequel (1539 P.S., R.G.A.S.), d Deanie 12 (4699 P.S., R.G.A.S.).

## DAIRY HERDS.

(These were judged on the farms to which they belonged, and were not exhibited in the Show Yard.)

Judge: R. STRATTON, The Duffryn, Newport, Mon.

The Prizes in Classes 212 and 213 were contributed by the following residents in the Counties mentioned:—

**Somerset**:—Lady Smyth, Earl Temple, Rt. Hon. H. Hobhouse, Sir E. Elton, Bart., Sir H. Miles, Bart., Messrs. G. A. Gibbs, M.P., H. M. Gibbs, A. C. Ireland, J. C. Hurlé, G. A. Wills, H. H. Wills and C. E. Evans.

**Wiltshire**:—The Marquis of Bath, The Marquis of Lansdowne, The Earl of Crewe, The Earl of Suffolk, The Earl of Radnor, The Earl of Pembroke, Lord Islington, Lord Ludlow, Sir P. Goldney, Bart., Sir J. Goldney, Admiral R. Neeld,

Col. M. G. Neeld, Lieut.-Col. Sir A. D. Neeld, Bart., Miss Carrick Moore, the late C. Awdry, Messrs. F. H. Goldney, G. P. Fuller, G. L. Palmer, F. M. Townshend, A. R. White, C. Garnett, J. D. Allen and W. J. S. White.

*Gloucestershire* :—Lord Ducie, Lord Sherborne, Lord Moreton, Sir L. Darell, Sir G. Holford, Sir R. A. Lister, Sir C. H. H. Parry, Messrs. C. MacIver, G. E. Lloyd Baker, R. I. Tidswell, A. Apperley, M. P. Price and J. Horlick..

**CLASS 212.**—*Herd of over 40 Dairy Cows, the property of a bona fide tenant farmer farming land in the County of Somerset, Wilts, or Gloucester.* [8 entries.]

**I. (£20.)**—W. R. WITHERS, Lower Court Farm, Long Ashton, Bristol.

**II. (£10.)**—C. WOOKEY, Barford Park Farm, Downton, Salisbury.

**III. (£5.)**—W. J. K. WATERS, Manor Farm, Bishopstone, Salisbury.

**V.H.C.**—M. S. WATERS, Swallowcliffe, Salisbury.

**H.C.**—J. A. ATTWATER, Dry Leaze, Cirencester.—F. GREADER, Horton, Devizes.—T. P. AND H. F. REAKES, Page House, Coleford, Bath.—W. J. S. WHITE, Zeal's Park Farm, Wilts.

**CLASS 213.**—*Herd of not less than 20 and not over 40 Dairy Cows, the property of a bona fide tenant farmer farming land in the County of Somerset, Wilts, or Gloucester.* [7 entries.]

**Equal I. (£11.)** H. MATTHEWS, Down Farm, Winterbourne, Bristol.

**Equal I. (£11.)** -F. W. WEDMORE, The Red House Farm, Stoke Bishop, Bristol.

**III. (£3.)**—G. F. CULLIMORE, Mobley Farm, Berkeley, Glos.

**H.C.**—C. BENNETT, Lorridge, Berkeley, Glos.—R. H. HOLE, Clapcote, Grittleton, Chippenham.

**C.**—W. BUTLER, Gatcombe Farm, Flax Bourton, Bristol.—H. FORD, Blue Gate Farm, Clapton, Berkeley, Glos.

## SHEEP.

### COTSWOLD.

(£11 towards the Prizes in Classes 116 to 118 were contributed by members of the Cotswold Sheep Breeders' Society).

**CLASS 116.**—*Cotswold Shearling Ram.* [4 entries.]

**I. (£10.)**—W. T. GARNE & SON, Aldsworth, Northleach, Gloucester.

**II. (£5.)**—W. T. GARNE & SON.

**III. (£2.)**—W. HOULTON, Broadfield Farm, Northleach, Glos.

**R.**—W. HOULTON.

CLASS 117.—*Pair of Cotswold Ram Lambs, dropped in 1912.*  
[3 entries.]

I. (£10).—W. T. GARNE & SON, Aldsworth, Northleach, Glos.

II. (£5).—W. T. GARNE & SON.

III. (£2).—W. HOULTON, Broadfield Farm, Northleach, Glos.

CLASS 118.—*Pen of three Cotswold Shearling Ewes.* [2 entries.]

I. (£10).—W. T. GARNE & SON, Aldsworth, Northleach, Glos.

II. (£5).—W. HOULTON, Broadfield Farm, Northleach, Glos.

DEVON LONGWOOLLED.

(£10 towards the prizes in Classes 119 to 121 were given by the Devon Longwoolled Sheep Breeders' Society.)

CLASS 119.—*Devon Longwoolled Shearling Ram.* [6 entries.]

I. (£10).—R. COOK, Crazelowman, Tiverton.

II. (£5).—R. COOK.

III. (£2).—F. WHITE, Torweston, Williton.

R.—F. WHITE.

H.C.—R. COOK.

CLASS 120.—*Pair of Devon Longwoolled Ram Lambs, dropped in 1912.*—(3 entries.)

I. (£10).—F. WHITE, Torweston, Williton.

II. (£5).—F. WHITE.

III. (Bronze Medal).—R. COOK, Crazelowman, Tiverton, Devon.

CLASS 121.—*Pen of three Devon Longwoolled Shearling Ewes.*  
[4 entries.]

I. (£10).—R. COOK, Crazelowman, Tiverton, Devon.

II. (£5).—R. COOK.

III. (Bronze Medal).—F. WHITE, Torweston, Williton.

R.—F. WHITE.

SOUTH DEVON.

CLASS 122.—*South Devon Shearling Ram.* [5 entries].

I. (£10).—P. G. BROWN, Tremadart, Duloe, Cornwall.

II. (£5).—J. STOOKE, Sherford, Brixton, Plymouth.

III. (Bronze Medal).—E. H. HOSKIN, Cartuther Barton, Liskeard.

R.—J. STOOKE.

**CLASS 123.—*Pen of three South Devon Shearling Ewes.* [3 entries.]**

**I. (£10.)**—J. STOOKE, Sherford, Brixton, Plymouth.

**II. (£5.)**—J. STOOKE.

**III. (Bronze Medal).**—P. G. BROWN, Tremadart, Duloe, Cornwall.

**KENT OR ROMNEY MARSH.**

(The Prizes in Class 124 were given by the Kent or Romney Marsh Sheep Breeders' Association.)

**CLASS 124.—*Kent or Romney Marsh Two-Shear Ram.* [8 entries.]**

**I. (£10.)**—THE EXECUTRIX OF THE LATE C. FILE, Water Farm, Elham, Canterbury, bred by the late C. File.

**II. (£5.)**—L. H. AND G. W. FINN, Westwood Court, Faversham.

**III. (£2.)**—J. E. QUESTED, The Firs, Cheriton, Kent.

**R.**—J. E. QUESTED.

**H.C.**—THE EXECUTRIX OF THE LATE C. FILE.

**C.**—F. NEAME, Macknade, Faversham.

**CLASS 125.—*Kent or Romney Marsh Shearling Ram.* [19 entries.]**

**I. (£10.)**—J. E. QUESTED, The Firs, Cheriton, Kent.

**II. (£5.)**—THE EXECUTRIX OF THE LATE C. FILE, Water Farm, Elham, Canterbury, bred by the late C. File, Water Farm, Elham, Canterbury.

**III. (£2.)**—J. B. PALMER, New Shelve Manor, Linham, Maidstone.

**R.**—THE EXECUTRIX OF THE LATE C. FILE.

**H.C.**—SIR H. E. DERING, BART., Sheerland House, Pluckley, Ashford, Kent.

**C.**—J. E. QUESTED, The Firs, Cheriton, Kent.

**CLASS 126.—*Pen of three Kent or Romney Marsh Shearling Ewes.* [9 entries.]**

**I. (£10.)**—J. B. PALMER, New Shelve Manor, Linham, Maidstone.

**II. (£5.)**—J. B. PALMER.

**III. (£2.)**—F. NEAME, Macknade, Faversham.

**R.**—J. E. QUESTED, The Firs, Cheriton, Kent.

**H.C.**—W. M. CAZALET, Fairlawne, Tonbridge.—C. E. GUNTHER, Tongswood, Hawkhurst.

**C.**—SIR H. E. DERING, BART., Sheerland House, Pluckley, Ashford, Kent.—THE EXECUTRIX OF THE LATE C. FILE, Water Farm, Elham, Canterbury, bred by the late C. File, Water Farm, Elham, Canterbury.—W. RENDALL, Horton Park, near Hythe, Kent.



**SOUTHDOWN.**

(The Prizes in Class 127 were given by the Southdown Sheep Society).

**CLASS 127.—*Southdown Two-Shear Ram.* [11 entries.]**

- I. (£10) and Special\*—**F. H. JENNINGS, Cockfield Hall, Bury St. Edmunds.  
**II. (£5.)—**SIR J. COLMAN, BART., Gatton Park, Surrey.  
**III. (£2.)—**W. M. CAZALET, Fairlawne, Tonbridge.  
**R.—**C. R. W. ADEANE, Babraham Hall, Cambs.  
**H.C.—**C. R. W. ADEANE, Babraham Hall, Cambs.—D. McCALMONT, Crockfords, Newmarket.  
**C.—**W. M. CAZALET.

**CLASS 128.—*Southdown Shearling Ram.* [14 entries.]**

- I. (£10) and R. for Special\*—**SIR J. COLMAN, BART., Gatton Park, Surrey.  
**II. (£5.)—**F. H. JENNINGS, Cockfield Hall, Bury St. Edmunds.  
**III. (£2.)—**C. R. W. ADEANE, Babraham Hall, Cambs.  
**R.—**SIR J. COLEMAN, Bart., Gatton Park, Surrey.  
**H.C.—**D. McCALMONT, Crockfords, Newmarket.—W. M. CAZALET, Fairlawne, Tonbridge.  
**C.—**C. R. W. ADEANE.—EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds.

**CLASS 129.—*Pair of Southdown Ram Lambs, dropped in 1912.*  
[6 entries.]**

- I. (£10.)—**D. McCALMONT, Crockfords, Newmarket.  
**II. (£5.)—**SIR J. COLMAN, BART., Gatton Park, Surrey.  
**III. (£2.)—**W. M. CAZALET, Fairlawne, Tonbridge.  
**R.—**F. H. JENNINGS, Cockfield Hall, Bury St. Edmunds.

**CLASS 130.—*Pen of three Southdown Shearling Ewes.* [6 entries.]**

- I. (£10.)—**SIR J. COLMAN, BART., Gatton Park, Surrey.  
**II. (£5.)—**F. H. JENNINGS, Cockfield Hall, Bury St. Edmunds.  
**III. (£2.)—**W. M. CAZALET, Fairlawne, Tonbridge.  
**R.—**EARL CADOGAN, K.G., Culford Hall, Bury St. Edmunds.  
**H.C.—**DUKE OF RICHMOND AND GORDON, K.G., Goodwood, Chichester.

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\* Given by the Southdown Sheep Society, under Conditions 68, a Silver Medal, or £1 for the best Ram or Ram Lamb in Classes 127, 128 or 129.

**HAMPSHIRE DOWN.**

**CLASS 131.—*Hampshire Down Shearling Ram.* [10 entries.]**

**I. (£10.)**—H. C. STEPHENS, Cholderton Lodge, Salisbury.

**II. (£5.)**—J. FLOWER, Chilmark, Salisbury.

**III. (£2.)**—THE HON. MRS. PLEYDELL-BOUVERIE, Coleshill House, Highworth, Wilts.

**R.**—J. FLOWER.

**H.C.**—C. COLES, Manor House, Winterbourne Stoke, Salisbury.—CAPT. J. A. MORRISON, M.P., Berwick House, Hindon, Salisbury.

**C.**—CAPT. J. A. MORRISON, M.P.

**CLASS 132.—*Pair of Hampshire Down Ram Lambs, dropped in 1912.*  
[12 entries.]**

**I. (£10.)**—H. C. STEPHENS, Cholderton Lodge, Salisbury.

**II. (£5.)**—J. FLOWER, Chilmark, Salisbury.

**III. (£2.)**—CAPT. J. A. MORRISON, M.P., Berwick House, Hindon, Salisbury.

**R.**—THE HON. MRS. PLEYDELL BOUVERIE, Coleshill House, Highworth, Wilts.

**H.C.**—J. FLOWER.—D. NICOLL, Burntwood, Martyr Worthy, Winchester.

**C.**—B. J. WATERS, Flamstone, Bishopstone, Salisbury.—G. C. WATERS, Burcombe Manor, near Salisbury.

**CLASS 133.—*Pen of three Hampshire Down Shearling Ewes.*  
[3 entries.]**

**I. (£10.)**—H. C. STEPHENS, Cholderton Lodge, Salisbury.

**II. (£5.)**—J. E. BAIGENT, Westend, Froyle, Alton, Hants.

**III. (Bronze Medal).**—J. E. BAIGENT.

(The Prizes in Class 134 were given by the Hampshire Down Sheep Breeders' Association).

**CLASS 134.—*Pen of three Hampshire Down Ewe Lambs, dropped in 1912.* [11 entries.]**

**I. (£7.)**—J. FLOWER, Chilmark, Salisbury.

**II. (£3.)**—D. NICOLL, Burntwood, Martyr Worthy, Winchester.

**R.**—H. C. STEPHENS, Cholderton Lodge, Salisbury.

**V.H.C.**—CAPT. J. A. MORRISON, M.P., Berwick House, Hindon, Salisbury.—THE HON. MRS. PLEYDELL-BOUVERIE, Coleshill House, Highworth, Wilts.—G. C. WATERS, Burcombe Manor, near Salisbury.

**C.**—E. T. JUDD, Cocum, Barton Stacey, Hants.—B. J. WATERS, Flamstone, Bishopstone, Salisbury.

**SHROPSHIRE.**

**CLASS 135.—*Shropshire Shearling Ram.* [6 entries.]**

- I. (£10.)**—K. W. MILNES, Beam House, Montford, Salop.  
**II. (£5.)**—M. WILLIAMS, Whiston Hall, Albrighton, Wolverhampton.  
**III. (£2.)**—M. WILLIAMS.  
**R.**—K. W. MILNES.  
**H.C.**—F. BIBBY, Hardwicke Grange, Shrewsbury.  
**C.**—F. BIBBY.

**CLASS 136.—*Pen of three Shropshire Shearling Ewes.* [3 entries.]**

- I. (£10.)** K. W. MILNES, Beam House, Montford, Salop.  
**II. (£10.)** F. BIBBY, Hardwicke Grange, Shrewsbury.  
**III. (Bronze Medal.)**—F. BIBBY.

**OXFORD DOWN.**

**CLASS 137.—*Oxford Down Shearling Ram.* [9 entries.]**

- I (£10.)**—J. HORLICK, Cowley Manor, near Cheltenham.  
**II (£5.)**—J. HORLICK.  
**III. (£2.)**—A. BRASSEY, Heythrop Park, Chipping Norton.  
**R. & H.C.**—J. T. HOBBS, Maisey Hampton, Fairford.  
**C.**—A. BRASSEY.—J. T. HOBBS.—J. T. HOBBS.

**CLASS 138.—*Pair of Oxford Down Ram Lambs, dropped in 1912.*  
[6 entries.]**

- I. (£10.)**—J. T. HOBBS, Maisey Hampton, Fairford.  
**II. (£5.)**—J. HORLICK, Cowley Manor, near Cheltenham.  
**III. (£2.)**—J. H. LARGE, Crudwell Manor, Malmesbury, Wilts.  
**R. & H.C.**—J. T. HOBBS.

**CLASS 139.—*Pen of three Oxford Down Shearling Ewes.* [4 entries.]**

- I. (£10.)**—J. T. HOBBS, Maisey Hampton, Fairford  
**II. (£5.)**—J. HORLICK, Cowley Manor, near Cheltenham.  
**III. (Bronze Medal.)**—A. BRASSEY, Heythrop Park, Chipping Norton.  
**R. & H.C.**—J. T. HOBBS.

lii     *Prizes awarded to Oxford Down and Dorset Horn Sheep.*

(The Prizes in Class 140 were given by the Oxford Down Sheep Breeders' Association, and will be withheld until the animals awarded the prizes are registered in the Flock Book.

**CLASS 140.—***Pair of Oxford Down Ewe Lambs, dropped in 1912.*  
[6 entries.]

**I. (£6.)**—J. T. HOBBS, Maisey Hampton, Fairford.

**II. (£3)**—J. T. HOBBS.

**III. (£1.)**—J. HORLICK, Cowley Manor, near Cheltenham.

**R. & H.C.**—J. H. LARGE, Crudwell Manor, Malmesbury, Wilts.

**DORSET HORN.**

**CLASS 141.—***Dorset Horn Shearling Ram.* [7 entries.]

**I. (£10) and Champion (£4.)\***—W. R. FLOWER, West Stafford, Dorchester.

**II. (£5.)**—W. R. FLOWER.

**III. (£2.)**—F. J. MERSON & SON, Farringdon, North Petherton, Bridgwater, Somerset.

**R. & H.C.**—Sir E. HAMBRO, Bart., K.C.V.O., Milton Abbey, Blandford, Dorset, bred by W. A. Johnson, Stafford Park, Puddletown, Dorchester.

**H.C.**—H. W. DAVIES, Clavelshay, North Petherton, Bridgwater.

**CLASS 142.—***Pair of Dorset Horn Ram Lambs, dropped after November 1, 1911.* [10 entries.]

**I. (£10) and R. for Champion\***—A. JOHNSON, Symondsbury, Bridport.

**II. (£5.)**—Sir E. HAMBRO, Bart., K.C.V.O., Milton Abbey, Blandford, Dorset.

**III. (£2.)**—A. JOHNSON.

**R.**—C. H CRAWFORD, Mappercombe, Powerstock, Dorset.

**V.H.C.**—Sir E. HAMBRO., Bart., K.C.V.O.—C. H. CRAWFORD.—W. R. FLOWER, West Stafford, Dorchester.

**G.**—L. C. ATTRILL, Bowcombe Farm, Isle of Wight.—W. R. FLOWER.—F. J. MERSON & SON, Farringdon, North Petherton, Bridgwater, Somerset.

**CLASS 143.—***Pen of three Dorset Horn Shearling Ewes.* [8 entries.]

**I. (£10) and Champion (£4)†**—A. JOHNSON, Symondsbury, Bridport.

**II. (£5.)**—Sir E. HAMBRO, Bart., K.C.V.O., Milton Abbey, Blandford, Dorset.

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\* Given by the Somerset County Agricultural Association for the best Ram or Ram Lamb in Class 141 or 142.

† Given by the Somerset County Agricultural Association for the best Ewe or Ewe Lamb in Class 143 or 144.

**III. (22.)**—F. J. MERSON & SON, Farringdon, North Petherton, Bridgwater, Somerset.

**R.**—W. R. FLOWER, West Stafford, Dorchester.

**V.H.C.**—A. JOHNSON.

**C.**—Sir E. HAMBRO, Bart., K.C.V.O.—F. J. MERSON & SON.

(The Prizes in Class 144 were given by the Dorset Horn Sheep Breeders' Association.)

**CLASS 144.**—*Pen of three Dorset Horn Ewe Lambs, dropped after November 1st, 1911.* [8 entries.]

**I. (210) and R.** for Champion (£4.)\*—Sir E. HAMBRO, Bart., K.C.V.O., Milton Abbey, Blandford, Dorset.

**II. (25.)**—W. R. FLOWER, West Stafford, Dorchester.

**III. (22.)**—L. C. ATTRILL, Bowcombe Farm, Isle of Wight.

**R.**—A. JOHNSON, Symondsburv, Bridport.

**V.H.C.**—L. C. ATTRILL.

#### **DORSET DOWN.**

(The Prizes in Class 145 were given by the Dorset Down Sheep Breeders' Association.)

**CLASS 145.**—*Dorset Down Shearling Ram.* [6 entries.]

**I. (210.)**—EDEN & WATSON, Purse Caundle, Sherborne, Dorset.

**II. (25.)**—EDEN & WATSON.

**III. (22.)**—G. C. WOOD-HOMER, Bardolf Manor, Dorchester.

**R.**—R. TORY, East Farm, Whitechurch, Blandford, bred by W. Lovelace, Puddlehinton, Dorchester.

**CLASS 146.**—*Pair of Dorset Down Ram Lambs, dropped in 1912.*  
[6 entries.]

**I. (210.)**—EDEN & WATSON, Purse Caundle, Sherborne, Dorset.

**II. (25.)**—R. TORY, East Farm, Whitechurch, Blandford.

**III. (22.)**—EDEN & WATSON.

**R.**—R. TORY.

**CLASS 147.**—*Pen of three Dorset Down Shearling Ewes.* [6 entries.]

**I. (210.)**—R. TORY, East Farm, Whitechurch, Blandford.

**II. (25.)**—G. C. WOOD-HOMER, Bardolf Manor, Dorchester.

**III. (22.)**—G. C. WOOD-HOMER.

**R.**—R. TORY.

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\* Given by the Somerset County Agricultural Association for the best Ewe or Ewe Lamb in Class 143 or 144.

liv *Prizes awarded to Exmoor Horn Sheep and Berkshire Pigs.*

**EXMOOR HORN.**

(The Prizes in Class 148 were given by the Exmoor Horn Sheep Breeders' Society.)

CLASS 148.—*Exmoor Horn Old Ram, two shear and upwards.*  
[2 entries.]

- I (£10)** and **Champion (£4.)\***—P. SMYTH, Broford, Dulverton, Somerset.  
**II. (Silver Medal.)**—D. J. TAPP, Highercombe, Dulverton.

CLASS 149.—*Exmoor Horn Shearling Ram.* [5 entries.]

- I. (£10.)** and **R for Champion\***—P. SMYTH, Broford, Dulverton, Somerset.  
**II. (£5.)**—P. SMYTH.  
**III. (Bronze Medal.)**—J. ROBINS, Lidecot Hall, High Bray, South Molton.

CLASS 150.—*Pen of three Exmoor Horn Shearling Ewes.* [3 entries.]

- I. (£10.)**—J. ROBINS, Lidecot Hall, High Bray, South Molton.  
**II. (£5.)**—W. L. LETHBRIDGE, Wood, South Tawton, Okehamton.  
**III. (Bronze Medal.)**—D. J. TAPP, Highercombe, Dulverton.

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**PIGS.**

**BERKSHIRE.**

CLASS 151.—*Berkshire Boar, farrowed in 1909, 1910 or 1911.*  
[6 entries.]

**I. (£7.)** and **Special (£5.)†**—W. BUCKLEY, Moundsmere Manor, Basingstoke, **Goldicote John** (15003), born 29th July, 1909, bred by E. C. B. Portman, Goldicote, Stratford-on-Avon; s Peter Simple (13846), d Danesfield Java (12861), s d Okeford Emperor (10779).

**II. (£3.)**—L. CURRIE, Minley Manor, Farnborough, Hants, **Minley Warrior**, born 7th January, 1911; s Highmoor Viscount (12721), d Motcombe Kitty (14628), s d Dorset Edward (14007).

**III. (£2.)**—J. A. FRICKER, Suddon Grange, Wincanton, born 2nd September, 1910; s Robert, d Freebody, s d Hightide.

**R.**—W. MEADEN, Hartgrove Farm, East Orchard, Shaftesbury, **Peaceable**, born 6th June, 1910, bred by R. B. Vincent, Waterston Farm, Dorchester; s Peaceable (14658), d Compton Dorothy (14977).

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\* Given by the Somerset County Agricultural Association, for the best Ram of any age in Class 148 or 149.

† Given by the British Berkshire Society. Best Boar or Sow in the Berkshire Classes entered in, or eligible for the Herd Book, whose sire and dam, together with the name of its breeder, were entered in the Catalogue.

**CLASS 152.—*Pair of Berkshire Boars, farrowed in 1912.*** [3 entries.]

**I. (25.)**—W. BUCKLEY, Moundsmere Manor, Basingstoke, born 2nd January, s Moundsmere Curioso (15223), d Whitley Countess (14938), s d Whitley Decoy (14574).

**II. (22.)**—J. A. FRICKER, Suddon Grange, Wincanton, born 3rd January; s Robert, d Suddon Belinda, s d Hightide.

**CLASS 153.—*Berkshire Breeding Sow, farrowed before 1912.***  
[5 entries.]

**I. (27) and R. for Special\*—**L. CURRIE, Minley Manor, Farnborough, Hants, **Minley Governess** (15104), born 12th June, 1910; s Highmoor Viscount (12721), d Wyndthorpe Candidate (14248), s d Don Camphor (12387).

**II. (23.)**—L. CURRIE, **Minley Primrose** (15009), born 18th January, 1910; s Compton Supreme (13989), d Minley Rosamond (13907), s d Highmoor Viscount (12721).

**III. (Bronze Medal.)**—W. BUCKLEY, Moundsmere Manor, Basingstoke, **Moundsmere Maisie** (15221), born 21st August, 1910; s Highmoor Curio (11807), d Danesfield Maisie 2nd (13886), s d Okeford Emperor (10779).

**CLASS 154.—*Pair of Berkshire Breeding Sows, farrowed in 1912.***  
[4 entries.]

**I. (25.)**—W. BUCKLEY, Moundsmere Manor, Basingstoke, born 11th January; s Axford Viscount (15008), d Hairbell (15041), s d Sir Frank (14656).

**II. (22.)**—J. A. FRICKER, Suddon Grange, Wincanton, born 6th January; s Julius Rex, d Billingham S.G., s d Freshman F.B.

**III. (Bronze Medal.)**—L. CURRIE, Minley Manor, Farnborough, Hants, born 12th January; s Highmoor Viscount (12721), d Wyndthorpe Candidate (14248), s d Don Camphor (12387).

**LARGE BLACK.**

**CLASS 155.—*Large Black Boar, farrowed in 1909, 1910, or 1911.***  
[6 entries.]

**I. (27) and Champion (24)†—**T. F. HOOLEY, Dry Drayton, near Cambridge, **Drayton Disappointment** (3337), born 26th July, 1909; s Drayton Demon 4th (2353), d Drayton Dainty 8th (7148), s d Henry Achilles (1999).

**II. (23.)**—C. F. MARRINER, Hasketon, Woodbridge, Suffolk, **Tarcowe Pride** (3341), born 23rd February, 1910, bred by T. Goodchild, Great Yeldham; s Pride of Tey (3037), d Tarcowe Princess 41st (7134).

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\* Given by the British Berkshire Society. Best Boar or Sow in the Berkshire Classes entered in, or eligible for the Herd Book, whose sire and dam, together with the name of its breeder, were entered in the Catalogue.

† Given by the Somerset County Agricultural Association for the best Exhibit in Classes 155 to 159.

**III. (#2.)**—H. J. KINGWELL, Great Aish, South Brent, Devon, **Brent Topper**, born 9th March, 1911; s Bentley King M'Panda (3293), d Brent Souvenir 8th (9062), s d Brent Oakencrough (2961).

**R.**—C. F. MARRINER, **Hasketon Lux 19th** (3745), born 25th January, 1911; s Hasketon Lux 18th (2969), d Hasketon Long Bess 19th (8640).

**CLASS 156.—Pair of Large Black Boars, farrowed in 1912.**

[11 entries.]

**I. (#5.)**—T. WARNE, Trevisquite Manor, St. Mabyn, Cornwall, born 2nd January; s Trekelland Masterpiece, d Content 4th.

**II. (#2.)**—W. AND H. WHITLEY, Primley Farm, Paignton, born 3rd January; s Tiptree 1st (2933), d Brent Susie 4th (7562), s d Whalesborough Chief (717).

**III. (#1.)**—T. F. HOOLEY, Dry Drayton, near Cambridge, born 9th January; s Henley Victor (2947), d Papworth Primrose (8476), s d Hinton King of Spades (2141).

**R.**—J. WARNE, Treveglos, St. Mabyn, S.O., Cornwall, born 10th January; s Prior of the Valley (2737), d Treveglos Angelina (8676), s d Treveglos Pride (2221).

**H.C.**—J. C. OLVER, Woodland Valley, Ladock, Cornwall, born 2nd January; s Bosoha Masterpiece (3395), d Queen of the Valley 2nd (7986), s d The Prior (1427).

**C.**—C. F. MARRINER, Hasketon, Woodbridge, Suffolk, born 13th January; s Tarcowe Pride (3341), d Hasketon Queen Mary 2nd (9268).—J. C. OLVER, born 4th January; s Bosoha Masterpiece (3395), d Lily of the Valley 1st (8910), s d Prior of the Valley (2737).

**CLASS 157.—Large Black Breeding Sow, farrowed before 1912.**

[7 entries.]

**I. (#7.)**—T. WARNE, Trevisquite Manor, St. Mabyn, Cornwall, **Levelsides**, born 10th February, 1910, bred by — James, Grampound Road; s Wonder of the West, d Goodameavey Sunset.

**II. (#3.)**—T. F. HOOLEY, Dry Drayton, near Cambridge, **Drayton Lucky Girl** (8490), born 31st January, 1909; s Drayton Demon 4th (2353), d Stroud Missie 3rd (6498), s d Borstal Masterpiece (841).

**III. (#2.)**—C. F. MARRINER, Hasketon, Woodbridge, Suffolk, **Hasketon Long Bess 18th** (8638), born 27th January, 1909; s Lux Rex (1189), d Hasketon Long Bess 4th (4156).

**R.**—J. WARNE, Treveglos, St. Mabyn, S.O., Cornwall, **Cornish Lass**, born 4th January, 1909, bred by H. Wardlaw, Sherborne, Dorset; s Hinton King of Spades (2141), d Wardlaw's Hilda 2nd (7582), s d Wardlaw's Haymaker (1863).

**H.C.**—F. G. S. CLERIHUE, Oaklands Park, Tolleshunt Knights, Witham, **Oaklands 1st** (8408), born March, 1909; s Hasketon Black King 10th (1937), d Trevisquite Winner (6728), s d Brent Chief (1243).

**C.**—W. E. MALLETT, Rainbow Wood Farm, Bath, **Treveglos Faithful**, born 10th August, 1910, bred by J. Warne, Cornwall; s Tinten Duke (3019), d Treveglos Faithful (7970), s d Treveglos Beauty (2046).



*Prizes awarded to Large Black and Large White Pigs.* lvii

(The Prizes in Class 158 were given by the Large Black Pig Society.)

**CLASS 158.**—*Large Black Breeding Sow, not exceeding 12 months old on May 1st, 1912.* [9 entries.]

**I. (#7) and R. for Champion\***—T. WARNE, Trevisquite Manor, St. Mabyn, Cornwall, born 10th May, 1911; s Trekelland Masterpiece, d Higher Hendra Queen 2nd.

**II. (#3.)**—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, **Cornwood Girl**, born 22nd June, 1911, bred by J. H. Glover, The Inn, Cornwood, South Devon; s Drayton Dandy (3331), d Cornwood Lass 31st, s d Cornwood Earl (2189).

**III. (#2.)**—T. F. HOOLEY, Dry Drayton, near Cambridge, **Drayton Babie** (10728), born 30th June, 1911; s Henley Achilles (1999), d Marchioness 7th (7580), s d The Prior (1427).

**R.**—J. WARNE, Treveglos, St. Mabyn, S.O., Cornwall, born 1st August, 1911, bred by T. Warne, Trevisquite, St. Mabyn, s Trekelland Masterpiece (2267), d Higher Hendra Queen 2nd (6996), s d Cornish King (893).

**C.**—THE MANAGERS OF THE BENTRY REFORMATORY, Westbury-on-Trym, Bristol, **Bentry Curious** (9990), born 13th May, 1911; s Hasketon Orange 2nd (3247), d Comely (8270), s d Claire Rentpayer (2163).

**CLASS 159.**—*Pair of Large Black Breeding Sows, farrowed in 1912.*  
[7 entries.]

**I. (#5.)**—W. AND H. WHITLEY, Primley Farm, Paignton, born 10th January; s Tiptree 1st (2933), d Primley Judy 2nd (8352), s d Brent Happy Boy (2219).

**II. (#2.)**—T. F. HOOLEY, Dry Drayton, near Cambridge, born 4th January; s Henley Victor (2947), d Marchioness 7th (7580), s d The Prior (1427).

**III. (#1.)**—W. WILLS, Marlwood, Thornbury, Glos., born 4th January; s Prime Minister (3479), d Lustleigh Marchioness 16th (9538), s d Talisman (2995).

**R.**—J. WARNE, Treveglos, St. Mabyn, S.O., Cornwall, born 10th January; s Prior of the Valley (2737), d Treveglos Angelina (8676), s d Treveglos Pride.

**H.C.**—J. C. OLVER, Woodland Valley, Ladock, Cornwall, born 4th January; s Bosoha Masterpiece (3395), d Queen of the Valley (7984), s d The Prior (1427).

**LARGE WHITE.**

**CLASS 160.**—*Large White Boar, farrowed in 1909, 1910 or 1911.*  
[5 entries.]

**I. (#7) and Special\***—EARL OF ELLESMERE, Worsley Hall, near Manchester, **Worsley Turk 28th** (Vol. xxviii.), born 17th July, 1910; s Turk of Worsley (12833), d Worsley Marchington Queen 2nd (26650), s d Worsley Turk 4th.

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\* Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best Animal in the Large White classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the Catalogue.

**II. (23).**—C. SPENCER, Holywell Manor, St. Ives, Hunts, **President of Holywell**, born 20th April, 1909, bred by W. H. Yotobed, Jun., Somersham, Hunts; s Holywell President (Vol. xxviii.), d Emmeth Kittie (Vol. xxviii.).

**III. (Bronze Medal).**—EARL OF ELLESMERE, **Worsley Turk 21st** (14329), born 21st January, 1910; s Worsley Turk 4th (11217), d Worsley Princess 55th (23860), s d Barkwith Joe (6895).

**R.**—R. E. W. STEPHENSON, Tue Brook, Liverpool, **Roger of Aughton** (12727), born 30th January, 1909, bred by R. Stuart, Gartang, Lancashire; s Shard Roger (8725), d Sowerby Superb 9th (23566), s d Fulwood Swindon (9861).

**CLASS 161.—*Pair of Large White Boars, farrowed in 1912.***

[5 entries.]

**I. (25).**—EARL OF ELLESMERE, Worsley Hall, near Manchester, born 8th January; s Broomhouse King (12355), d Worsley Princess lxviii (26676), s d Samson of Worsley (10095).

**II. (22).**—J. NEAVERSON, Eye, Peterborough, born 2nd January; s Eye Ranger 2nd (Vol. xxviii), d Eye Lass 13th (Vol. xxviii), s d Eye Hugo (12597).

**III. (Bronze Medal).**—EARL OF ELLESMERE, born 8th January; s Emperor of Worsley (10791), d Worsley Duchess 19th (26606), s d President (11861).

**CLASS 162.—*Large White Breeding Sow, farrowed before 1912.***

[4 entries.]

**I. (27) and R. for Special\*—**R. E. W. STEPHENSON, Tue Brook, Liverpool, **Tallington Companion** (29914), born 10th January, 1909, bred by W. E. Measures, Tallington; s Ruddington Right Stamp (8717), d Tallington Carnation 1st (21716), s d Worsley Monarch 19th (9371).

**II. (23).**—EARL OF ELLESMERE, Worsley Hall, Manchester, **Worsley Miss 18th** (30336), born 4th January, 1910; s Worsley Turk 4th (11217), d Miss Russell Walker (25634), s d Holywell Bourne (9161).

**III. (Bronze Medal).**—EARL OF ELLESMERE, **Nottingham Lady Mollington 1st** (23200), born 24th February, 1907, bred by the Nottingham Corporation Farm Committee, Stoke Farm, Stoke Bardolph, Nottingham; s Nottingham Philip (10015), d Lady Mollington 32nd (17082), s d Mont Cenis (7845).

**CLASS 163.—*Pair of Large White Breeding Sows, farrowed in 1912.***

[5 entries.]

**I. (25).**—EARL OF ELLESMERE, Worsley Hall, near Manchester, born 8th January; s Emperor of Worsley (10791), d Worsley Duchess 19th (26606), s d President (11861).

**II. (22).**—R. E. W. STEPHENSON, Tue Brook, Liverpool, born 5th January, bred by R. Holden, Whitestake, Preston; s Albert of Preston (13243), d Lostock Hall Princess 3rd (28980), s d Fulwood Emperor 2nd (11671).

\* Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best Animal in the Large White classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the Catalogue.

**III. (Bronze Medal).**—J. NEAVERSON, Eye, Peterborough, born 2nd January ; s Eye Ranger 2nd (Vol. xxviii.), d Eye Lass 13th (Vol. xxviii.), s d Eye Hugo (12597).

**R.**—EARL OF ELLESMERE, born 7th January ; s Dreadnought 2nd (12477), d Worsley Hope 4th (21854), s Worsley Eclipse 9th (9365).

# MIDDLE WHITE.

CLASS 164.—*Middle White Boar, farrowed in 1909, 1910 or 1911.*

[5 entries.]

**I. (£7) and Special\*—**L. C. PAGET, Middlethorpe Hall, York, **Banker of Castlecroft** (12995), born 6th January, 1909, bred by the late R. S. Sadler, The Leasowes, Sutton Coldfield, Birmingham ; s Wharfedale Bard (12111), d Castlecroft Brilliant (21936), s d Castlecroft Sir Gilbert (9403).

**II. (£3.)**—C. SPENCER, Holywell Manor, St. Ives, Hunts, **Sefton of Holywell** (14465), born 14th January, 1910, bred by the Earl of Sefton, Croxteth Park, Liverpool ; s Tarbock Cumber (12101), d Tarbock Pattie 20th (22098).

**III. (Bronze Medal).**—T. WILLCOCK, Dunham Mount, Bowdon, Cheshire, **Manchester of Walton** (13059), born 2nd January, 1909, bred by L. C. Paget, Middlethorpe Hall, York ; s Manchester of Holywell (11293), d Tarbock Pattie 21st (22100), s d Walton Turret 12th (9453).

**R.**—W. B. HILL, Underhill Farm, Cannock Road, Wolverhampton, **Prestwood Bugler** (14451), born 23rd August, 1909 ; s Wharfedale Bard (12111), d Rose of Prestwood (24158), s d Walton John 12th (9435).

**H.C.**—T. WILLCOCK, **Dunham Squire** (Vol. xxviii.), born 16th September, 1910 ; s Carrington Vicar 1st (14373), d Walton Rose 71st (24198), s d Walton Cumber 4th (9427).

CLASS 165.—*Pair of Middle White Boars, farrowed in 1912.*

[3 entries.]

**I. (£5.)**—L. C. PAGET, Middlethorpe Hall, York, born 4th January, bred by the Earl of Sefton, Croxteth Hall, Liverpool ; s Reveller of Croxteth, d Tarbock Pattie 47th (30970), s d Tarbock Cumber (12101).

**II. (£2.)**—W. B. HILL, Underhill Farm, Cannock Road, Wolverhampton, born 2nd January ; s Prestwood Bugler (14451), d Graceless of Prestwood (Vol. xxviii.), s d Abbot of Coleshill (12105).

CLASS 166.—*Middle White Breeding Sow, farrowed before 1912.*

[6 entries.]

**I. (£7.)**—C. SPENCER, Holywell Manor, St. Ives, Hunts, **Holywell Yorkshire Rose** (Vol. xxviii.), born 21st August, 1909 ; s Holywell Middleton 3rd (13045), d Holywell Rosella 2nd (24094), s d Holywell Rosario (8857).

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\* Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best animal in the Middle White Classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the catalogue.

lx      *Prizes awarded to Middle White and Tamworth Pigs.*

**II. (#3).**—G. W. STARK, Forge Farm, Caerleon, **Primrose**, born 20th January, 1909, bred by the Earl of Sefton, Croxteth Hall; s Tarbock Clumber (12101), d Tarbock Pattie 12th (22082), s d Walton Turret 12th (9453).

**III. (#2).**—W. B. HILL, Underhill Farm, Cannock Road, Wolverhampton, **Prestwood Bessie** (30874), born 1st January, 1909; s Prestwood Gilbert (13971), d Joan of Prestwood (24100).

**R.**—T. WILLCOCK, Dunham Mount, Bowdon, Cheshire, **Queen of Dunham** (Vol. xxvii.), born 25th March, 1910, bred by L. C. Paget, Middlethorpe Hall, York; s Pat of Wharfedale (15063), d Wharfedale Frolic 2nd (24214), s d Offley Dandy (9417).

**H.C.**—T. WILLCOCK, **Walton Rose** 71st (24198), born 16th January, 1908, bred by Sir Gilbert Greenall, Bart., Walton Hall, Warrington; s Walton Clumber 4th (9427), d Walton Rose 67th (22130), s d Offley John (7395).

**CLASS 167.**—*Pair of Middle White Breeding Sows, farrowed in 1912.*  
[3 entries.]

**I. (#5) and R.** for Special\*—L. C. PAGET, Middlethorpe Hall, York, born 3rd January; s Wharfedale Reveller (11329), d Wharfedale Marguerite (27194), s d Wharfedale Flash (13127).

**II. (#2).**—G. C. WOOD-HOMER, Bardolf Manor, Dorchester, born 4th January; s Wharfedale Duke of York, d Bardolf Holywell, s d Holywell Viscount.

**III. (Bronze Medal).**—W. B. HILL, Underhill Farm, Cannock Road, Wolverhampton, born 2nd January; s Prestwood Bugler (14451), d Graceless of Prestwood (Vol. xxviii.), (34058), s d Abbot of Coleshill (12105).

**TAMWORTH.**

**CLASS 168.**—*Tamworth Boar, farrowed in 1909, 1910 or 1911.*  
[7 entries.]

**I. (#7) and R.** for Special†—R. IBBOTSON, Knowle, Warwickshire, **Osmaston Buxus** (14633), born 10th August, 1910, bred by Sir P. Walker, Osmaston Manor; s Dick of Osmaston, d Acacia of Osmaston, s d Redskin of Whitacre.

**II. (#3).**—D. W. PHILIP, The Redlands, Whitacre, Birmingham, **Duke of Whitacre** (15773), born 4th January, 1911, bred by Sir P. Walker, Bart., Osmaston Manor, Derby; s Elford Bishop (13175), d Osmaston Ivy (27396), s d Rufus of Osmaston (11435).

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\* Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best animal in the Middle White Classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the catalogue.

† Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best animal in the Tamworth Classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the catalogue.

**III. (22.)**—E. DE HAMEL, Middleton Hall, Tamworth, **Middleton Milan** (Vol. xxviii.), born 21st July, 1910; s Mason of Middleton (13217), d Middleton Merker (31228), s d Gay Lad of Middleton (12181).

**R.**—E. DE HAMEL, **Middleton Milo** (Vol. xxxvii), born 2nd January, 1911; s Mason of Middleton (13217), d Middleton M'bega (31226), s d Gay Lad of Middleton (12181).

**CLASS 169.**—*Pair of Tamworth Boars, farrowed in 1912.*

[3 entries.]

**I. (25.)**—D. W. PHILIP, The Redlands, Whitacre, Birmingham, born 5th January; s Duke of Whitacre (15773), d Cholderton Golden Beauty 2nd, s d Duke of Gloucester (12177).

**II. (22.)**—W. H. MITCHELL, Elmdene, Kenilworth, born 9th January; s Dandy of Elmdene (14549), d Rose of Elmdene (31276), s d Osmaston Tom (13233).

**CLASS 170.**—*Tamworth Breeding Sow, farrowed before 1912.*

[7 entries.]

**I. (27) and Special\***—R. IBBOTSON, Knowle, Warwickshire, **Knowle Empress Queen** (31164), born 12th January, 1910; s Knowle Lord Minto, d Knowle Empress, s d Bishop of Knowle.

**II. (23.)**—D. W. PHILIP, The Redlands, Whitacre, Birmingham, **Whitacre Cherry Blossom** (31300), born 13th June, 1909; s Red Skin of Whitacre (12219), d Whitacre Cherry Ripe (22320), s d Director of Whitacre.

**III. (22.)**—R. IBBOTSON, **Knowle Rosalind 2nd** (31184), born 4th January, 1910; s Knowle Baron (12189), d Knowle Rosie, s d Knowle King David.

**R.**—E. DE HAMEL, Middleton Hall, Tamworth, **Middleton Masika** (Vol. xxviii.), born 4th January, 1910; s Gay Lad of Middleton (12181), d Middleton Maru (24352), s d Middleton Matoppo (9537).

**H.C.**—E. DE HAMEL, **Middleton M'bega** (31226), born 4th January, 1909; s Gay Lord of Middleton (12181), d Middleton Microcosma (24364), s d Middleton Majestic (8971).

**CLASS 171.**—*Pair of Tamworth Breeding Sows, farrowed in 1912.*

[3 entries.]

**I. (25.)**—D. W. PHILIP, The Redlands, Whitacre, Birmingham, born 5th January; s Duke of Whitacre (15773), d Cholderton Golden Beauty 2nd, s d Duke of Gloucester (12177).

**II. (22.)**—W. H. MITCHELL, Elmdene, Kenilworth, born 18th January; s Dandy of Elmdene (14549), d Elmdene Matron 7th (31140), s d Knowle Nestor (10429).

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\* Given by the National Pig Breeders' Association, a Gold Medal, value £3 3s. (or £3 3s. in money), for the best animal in the Tamworth Classes, entered in or eligible for the Herd Book, and the names and numbers of whose sire and dam appear in the catalogue.

**ANY BREED.**

(The Prizes in Class 172 and 173 were given by Messrs. Chas. and Thos. Harris & Co., Ltd., Calne, Wilts.)

**CLASS 172.**—*Boar most suitable for producing the best class of pigs for Wiltshire Bacon—Silver Cup, value £5 5s. [10 entries.]*

**I. (Silver Cup).**—EARL OF ELLESMERE, Worsley Hall, near Manchester, **Worsley Turk 28th** (Vol. xxviii.), born 17th July, 1910; s Turk of Worsley (12833), d Worsley Marchington Queen 2nd (26650), s d Worsley Turk 4th.

**R.**—R. IBBOTSON, Knowle, Warwickshire, **Knowle Sylvanus** (14617), born 3rd January, 1910; s Knowle Lord Minto (12191), d Knowle Sylvia 2nd (24340), s d Knowle King Solomon.

**CLASS 173.**—*Hilt or Sow most suitable for producing the best class of pigs for Wiltshire Bacon—Silver Cup, value £5 5s. [11 entries.]*

**I. (Silver Cup).**—R. IBBOTSON, Knowle, Warwickshire, **Knowle Rosalind 2nd** (31184), born 4th January, 1910; s Knowle Baron (12189), d Knowle Rosie, s d Knowle King David.

**R.**—D. W. PHILIP, The Redlands, Whitacre, Birmingham, **Whitacre Cherry Blossom** (31300), born 13th June, 1909; s Red Skin of Whitacre (12219), d Whitacre Cherry Ripe (22320), s d Director of Whitacre.

**PRODUCE.****CIDER.**

(Open to Growers or Makers).

*First Prize in each Class, a Gold Medal and a Certificate.*

*Second Prize in each Class, a Silver Medal and a Certificate.*

*Third Prize in each Class, a Bronze Medal and a Certificate.*

**CLASS 174.**—*Cask of not less than 18 and not more than 30 gallons of Cider, of the 1911 Vintage. [8 entries.]*

**I.**—H. J. DAVIS.

**II.**—PULLIN BROS.

**III.**—T. STONE.

**R.**—QUANTOCK VALE CIDER CO.

**V.H.C.**—T. STONE.

**CLASS 175.**—*12 Bottles of Cider, of the 1911 vintage. [11 entries.]*

**I.**—PULLIN BROS.

**II.**—D. J. CROFTS & SON.

**III.**—G. VICKERY.

**R.**—QUANTOCK VALE CIDER CO.

**CLASS 176.**—*Cask of not less than 18 and not more than 30 gallons of Cider, of the 1911 vintage.* [10 entries.]

**I.**—D. J. CROFTS & SON.

**II.**—H. J. DAVIS.

**III.**—H. J. DAVIS.

**R.**—D. J. CROFTS & SON.

**CLASS 177.**—*12 Bottles of Cider, of the 1911 vintage.* [17 entries.]

**I.**—H. J. DAVIS.

**II.**—H. J. DAVIS.

**III.**—D. J. CROFTS & SON.

**R.**—W. VICKERY.

**CLASS 178.**—*12 Bottles of Cider, of any year previous to 1911 vintage.* [7 entries.]

**I.**—H. J. DAVIS.

**II.**—T. STONE.

**III.**—T. STONE.

**R.**—DAVIES & SHINGLEY.

### CHEESE.

**CLASS 179.**—*Three Cheddar Cheeses (not less than 56lbs. each), made in 1911.* [21 entries.]

**I. (£15.)**—J. SAGE.

**II. (£10.)**—G. D. TEMPLEMAN.

**III. (£5.)**—S. WHITE.

**R. & V.H.C.**—H. TRAVERS.

**H.C.**—C. H. COURT.—A. STONE & SON.

**C.**—C. C. HÁRDING.

**CLASS 180.**—*Three Cheddar Cheeses (not over 56lbs. each), made in 1911.* [15 entries.]

**I. (£8) and Special (£5)\***—G. D. TEMPLEMAN.

**II. (£5.)**—E. BRAKE.

**III. (£3.)**—S. H. PERRY.

**C.**—L. F. DIMENT.—P. H. FRANCIS.

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\* Given by the Somerset County Agricultural Association, and open only to exhibits made by residents in Somerset, for best exhibit of Cheddar Cheese made in 1911.

(The Prizes in Class 181 were given by the Somerset Agricultural Instruction Committee.)

**CLASS 181.**—*Three Large or six Truckle Cheddar Cheeses, made in 1912 by a student who had received instruction in the Somerset County Council or Western Counties Cheese School.* [6 entries.]

**I. (25) and Special (25)\***—MRS. A. T. TEMPLEMAN.

**II. (23) and R. for Special\***—A. G. SAY.

**III. (22.)**—R. E. GILLINGHAM.

**R. & H.C.**—MISS P. E. BURDGE.

**CLASS 182.**—*Three Single Gloucester or Wilts Cheeses, made in 1912.* [12 entries.]

**I. (26.)**—H. H. PICKFORD.

**II. (24.)**—J. SAGE.

**III. (22.)**—F. PORTCH.

**R. & H.C.**—G. D. TEMPLEMAN.

**H.C.**—P. H. FRANCIS.

**C.**—E. BRAKE.

**CLASS 183.**—*Eight Loaf or other Truckle Cheeses, made in 1911.* [10 entries.]

**I. (25) and R. for Special\***—E. BRAKE.

**II. (23.)**—T. ELTON.

**III. (22.)**—J. CANDY.

**R. & H.C.**—J. HOBBS & SON.

**C.**—CARY & PORTCH.

**CLASS 184.**—*Three Caerphilly Cheeses, made in 1912.* [11 entries.]

**I. (25.)**—WILTS UNITED DAIRIES.

**II. (23.)**—E. DIBBLE.

**III. (22.)**—A. G. SAY.

**H.C.**—C. AND G. PRIDEAUX.

**C.**—E. J. DUCKETT.—J. E. HAWKINGS.

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\* Given by the Somerset County Agricultural Association, and open only to exhibits made by residents in Somerset for Best Exhibit of Cheddar Cheese, made in 1912, in the foregoing classes.



(The Prizes in Class 185 were given by the Somerset Agricultural Instruction Committee.)

**CLASS 185.**—*Three Caerphilly Cheeses, made in 1912, by a student who had received instruction in the Somerset County Council or Western Counties Cheese School.* [4 entries.]

**I. (23.)**—A. G. SAY.

**II. (22.)**—MISS N. EVANS.

### CREAM CHEESE, BUTTER & CREAM.

(These Classes were not open to Professional Teachers).

**CLASS 186.**—*Three Cream or other Soft Cheeses.* [12 entries.]

**I. (23.)**—MISS M. G. PRIDEAUX.

**II. (22.)**—J. HILDICK.

**III. (21.)**—F. L. PERKINS.

**R.**—MISS M. JAMES.

**H.C.**—EARL OF PLYMOUTH.—C. AND G. PRIDEAUX.

**C.**—BROOKLANDS DAIRY CO.

**CLASS 187.**—*3lbs. of Fresh (or very slightly salted) Butter.*  
[29 entries.]

**I. (24.)**—J. MOORE.

**I. (24.)**—MRS. R. UNDERWOOD.

**II. (23.)**—MRS. L. R. MILDON.

**II. (23.)**—MRS. C. VENNING.

**III. (22.)**—MRS. J. H. HEARN.

**III. (22.)**—VISCOUNT VALLETORT.

**IV. (21.)**—MRS. J. T. DIBSDALL.

**IV. (21.)**—J. M. HARRIS.

**R.**—SIR J. FULLER, BART.

**V.H.C.**—MRS. R. GERRY.

**H.C.**—MRS. J. H. PHILLIPS.—A. F. SOMERVILLE.—EARL TEMPLE.

**C.**—MRS. J. WAY.

**CLASS 188.**—*3lbs. of Fresh (or very slightly salted) Butter, made from scalded cream.* [16 entries.]

**I. (24.)**—MRS. J. H. HEARN.

**II. (23) and R. for Special\***—MRS. J. T. DIBSDALL.

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\* Given by the Somerset County Agricultural Association, and open only to residents in the County of Somerset, for the best exhibit of Butter, made from the produce of cows of the Channel Islands breed.

lxvi     *Prizes awarded for Cream Cheese, Butter and Cream.*

**III. (£2.)**—MRS. L. R. MILDON.

**IV. (£1.)**—EARL TEMPLE.

**R.**—VISCOUNT VALLETORT.

**V.H.C.**—MRS. C. VENNING.

**H.C.**—MRS. R. GERRY.—MRS. J. H. PHILLIPS.—A. F. SOMERVILLE.

**G.**—MRS. J. M. MARTIN.

CLASS 189.—*3lbs. of Butter to which no salt whatever has been added,  
judged on the last day of the Show.* [18 entries.]

**I. (£4.)**—MRS. R. UNDERWOOD.

**II. (£3.)**—J. MOORE.

**III. (£2.)**—J. M. HARRIS.

**IV. (£1.)**—MRS. H. THOMAS.

**R.**—SIR J. FULLER, BART.

**V.H.C.**—MRS. J. H. PHILLIPS.

**H.C.**—MRS. L. R. MILDON.—MRS. J. WAY.

CLASS 190.—*Not less than 12lbs. of Fresh Butter packed for transit.  
[1 entry.]*

**I. (£3.)**—MISS M. G. PRIDEAUX.

CLASS 191.—*12lbs. of Keeping Butter, in a jar or crock, delivered to  
the Secretary four weeks before the Show.* [7 entries.]

**I. (£4.)**—MRS. L. R. MILDON.

**II. (£3) and Special (£2)\***—A. F. SOMERVILLE.

**III. (£2.)**—MRS. A. A. BERE.

**R.**—MISS W. J. EDDY.

**H.C.**—MRS. J. THOMAS.

CLASS 192.—*4 Half-pounds of Scalded Cream.* [10 entries.]

**I. (£3.)**—MRS. C. VENNING.

**II. (£2.)**—MRS. L. R. MILDON.

**III. (£1.)**—MISS M. G. PRIDEAUX.

**R.**—C. AND G. PRIDEAUX.

**V.H.C.**—MRS. J. T. DIBSDALL.—MRS. J. H. PHILLIPS.

**H.C.**—F. AND H. E. HORNBY.—R. NEVILLE GRENVILLE.

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\* Given by the Somerset County Agricultural Association, and open only to residents in the County of Somerset, for the best exhibit of Butter, made from the produce of cows of the Channel Islands breed.

(The Prizes in Classes 193 and 194 were given by the Somerset Agricultural Instruction Committee.)

**CLASS 193.**—*3lbs. of Fresh (or very slightly salted) Butter, made by a Student of the Somerset County Butter School.* [6 entries.]

- I. (£2 10s.)** and Special (**£2**)\* —MRS. T. STEVENS.
- II. (£1 10s.)**—MISS M. WEAVER.
- III. (£1.)**—MISS A. PEARCE.
- R. & V.H.C.**—MISS B. SKINNER.
- H.C.**—MRS. E. J. HOLE.
- C.**—MISS M. EVANS.

**CLASS 194.**—*2lbs. of Whey Butter, made by a student of the Somerset County Dairy Schools.* [2 entries.]

- I. (£1 10s.)**—R. E. GILLINGHAM.

## COMPETITIONS.

### BUTTER-MAKING.

(No winner of a first prize given by this Society for Butter-making during the last three years was eligible to compete in Classes 195, 197 or 199).

(The Prizes in Classes 196, 198, 200, 202 and 204 were given by the Somerset Agricultural Instruction Committee.)

**CLASS 195.**—*For first year Students who had been through a course of instruction in Butter-making at any County Council School since the Society's last Show.* [9 entries.]

- I. (£4.)**—MISS M. STICKLAND.
- II. (£3.)**—MISS E. T. JEWELL.
- III. (£1 10s.)**—MISS M. C. KNIGHT.
- R.**—MISS E. BENNION.
- H.C.**—MRS. A. MARTIN.—MISS G. SMITH.—MISS D. WESTMORE.

**CLASS 196.**—*For Students of the Somerset County Butter School, who had been through a course of instruction since May 27th, 1911.* [11 entries.]

- I. (£2.)**—MISS E. M. FORD.
- II. (£1 10s.)**—MISS M. SHEPHERD.
- III. (£1.)**—MISS N. RALLS.
- R.**—MISS N. SWEET.
- V.H.C.**—MISS M. BROWNING.—MISS E. PARKER.—MISS D. A. WYATT.
- H.C.**—MISS L. PRIDEAUX.—MISS E. A. J. SHEPHERD.—MISS B. SKINNER.

\* Best exhibit of Butter, made from the produce of Cows of any breed other than Channel Islands.

CLASS 197.—*For Men and Women, on the second day of the Show.*  
[37 entries.]

**I. (£4.)**—MRS. E. WATTS.

**II. (£3.)**—MISS C. WEBB.

**III. (£1 10s.)**—MISS L. A. TRERICE.

**IV. (£1.)**—MISS J. ROSSER.

**R.**—MISS D. WESTON.

**V.H.C.**—MRS. A. GULLIVER.—MISS M. C. KNIGHT.—MISS H. M. TRENCHARD.

**H.C.**—MISS D. BICE.—MISS E. K. CHANNON.—MISS B. FLETCHER.—MISS E. S. FRANCIS.—MISS E. JAMES.—MISS J. JAMES.—MISS C. PANTALL.—MISS J. L. PRITCHARD.—MISS M. STICKLAND.

**C.**—MISS M. A. DALRYMPLE.—MISS E. F. M. GOODWIN.—MISS W. HOLTON.—MISS E. T. JEWELL.—MRS. B. MILES.

CLASS 198.—*For Students of the Somerset County Butter School, who had never won a Prize in any Competition other than those held in connection with the School. On the second day of the Show.*  
[12 entries.]

**I. (£2.)**—MISS M. SHEPHERD.

**II. (£1 10s.)**—MISS D. TUCKER.

**III. (£1.)**—MISS G. PARKER.

**V.H.C.**—MISS M. BROWN.

**H.C.**—MISS A. PEARCE.—MISS B. SKINNER.—MISS N. SWEET.

CLASS 199.—*For Men and Women, on the third day of the Show.*  
[42 entries.]

**I. (£4.)**—MISS H. M. WILLIAMS.

**II. (£3.)**—MISS E. JAMES.

**Equal III. (15s.)**—MISS E. K. CHANNON.

**Equal III. (15s.)**—MISS J. JAMES.

**Equal IV. (10s.)**—MISS M. A. DALRYMPLE.

**Equal IV. (10s.)**—MISS H. M. TRENCHARD.

**R.**—MISS A. GULLIVER.

**V.H.C.**—MISS D. BICE.—MISS W. E. DUNN.—MISS B. FLETCHER.—MISS M. C. KNIGHT.—MRS. B. MILES.—MISS C. PANTALL.—MISS C. WEBB.

**H.C.**—MISS E. F. M. GOODWIN.—MISS W. HOLTON.—MISS M. B. HUGOE.—MRS. W. H. PADFIELD.—MISS J. L. PRITCHARD.—MISS J. ROSSER.—MISS L. A. TRERICE.—MISS M. WILLIAMS.

**C.**—MISS F. BATH.—MISS M. BROWN.—MISS E. M. DUNN.—MISS E. S. FRANCIS.—MISS G. SMITH.—MISS M. STICKLAND.—MISS M. C. THOMAS.—MISS D. WESTON.

**CLASS 200.**—*For Students of the Somerset County Butter School, who had never won a First Prize at any Show, on the third day of Show.*  
[12 entries.]

**I. (£2.)**—MISS N. SWEET.

**II. (£1 10s.)**—MISS M. WEAVER.

**III. (£1.)**—MISS E. PARKER.

**R.**—MISS D. TUCKER.

**H.C.**—MISS A. PEARCE.—MISS B. SKINNER.

**C.**—MISS M. BROWN. — MRS. W. H. PADFIELD.—MISS E. A. J. SHEPHERD.

**CLASS 201.**—*For Men and Women, on the fourth day of the Show.*  
(33 entries.)

**I. (£4.)**—MISS M. C. KNIGHT.

**II. (£3.)**—MISS C. PANTALL.

**III. (£1 10s.)**—MISS J. JAMES.

**IV. (£1.)**—MRS. W. WATTS.

**R.**—MISS A. PRITCHARD.

**V.H.C.**—MISS W. HOLTON.—MISS J. ROSSER.

**H.C.**—MISS F. BATH.—MISS D. BICE.—MISS M. A. DALRYMPLE.—MISS B. FLETCHER.—MISS E. F. M. GOODWIN.—MISS E. JAMES.—MRS. B. MILES.—MISS H. M. TRENCHARD.—MISS L. A. TREICE.—MISS D. WESTON.

**C.**—MISS E. BENNION.—MISS M. K. COOKE.—MISS E. S. FRANCIS.—MISS J. HARDING.—MISS M. B. HUGOE.—MISS E. T. JEWELL.—MRS. A. MARTIN.—MISS N. MEADEN.—MRS. L. R. MILDON.—MISS G. SMITH.

**CLASS 202.**—*For Students of the Somerset County Butter School on the fourth day of Show.* [12 entries.]

**I. (£2.)**—MISS W. E. DUNN.

**II. (£1 10s.)**—MISS E. M. DUNN.

**III. (£1.)**—MISS G. PARKER.

**R.**—MISS N. SWEET.

### CHAMPION CLASS.

**CLASS 203.**—*For Winners of First and Second prizes in the Butter-making Classes 195, 197, 199, or 201, or at any previous meeting of the Society, on the fifth day of the Show.* [19 entries.]

**I. (Gold Medal).**—MISS H. M. TRENCHARD.

**II. (Silver Medal).**—MISS H. M. WILLIAMS.

**III. (Bronze Medal).**—MISS C. WEBB.

**R.**—MISS M. STICKLAND.

**V.H.C.**—MISS D. BICE.—MISS W. E. DUNN.—MISS J. ROSSER.—MRS. W. WATTS.—MISS C. PANTALL.

**H.C.**—MISS E. K. CHANNON.—MISS M. A. DALRYMPLE.—MISS E. M. DUNN.  
—MRS. L. R. MILDON.—MISS A. PRITCHARD.—MRS. E. WATTS.

**C.**—MISS E. JAMES.

**CLASS 204.**—*For winners of First and Second Prizes in Classes 196, 198, 200 and 202, on the fifth day of the Show.* [8 entries.]

**I. (Gold Medal).**—MISS N. SWEET.

**II. (Silver Medal).**—MISS M. SHEPHERD.

**III. (Bronze Medal).**—MISS W. E. DUNN.

**R.**—MISS E. M. DUNN.

**V.H.C.**—MISS E. FORD.—MISS TUCKER.

**H.C.**—MISS WEAVER.

## MILKING.

**CLASS 205.**—*For Men 18 years of age and over.* [7 entries.]

**I. (£1 10s.)**—H. MORGAN.

**II. (£1.)**—W. HALLETT.

**III. (15s.)**—J. CRYER.

**R.**—J. LOWE.

**H.C.**—G. ALLEN.

**C.**—G. C. GANE.

**Class 206.**—*For Women 18 years of age and over.* [4 entries.]

**I. (£1 10s.)**—MISS J. ROSSER.

**II. (£1.)**—MISS E. T. JEWELL.

**R.**—MISS E. BATH.

**V.H.C.**—MRS. W. WATTS.

**CLASS 207.**—*For Boys and Girls under 18 years of age.* [3 entries.]

**I. (£1 10s.)**—MISS E. ELTON.

**II. (£1.)**—G. F. CRYER.

**R.**—M. BROWN.

## SHOEING.

**CLASS 208.**—*For Nag Horse Shoeing, by Smiths 25 years of age and over on the day of the competition, who had not previously won the First Prize in a corresponding Class at one of the Society's meetings, or a Champion Prize at any National or County Agricultural Society's Show, on the second day of the Show.* [18 entries.]

**I. (£4.)**—R. JONES, R.S.S.

**II. (£3.)**—W. HOUSE.

**III. (22.)**—E. J. WHITEHORN, R.S.S.

**IV. (21.)**—T. PRICE, R.S.S.

**R.**—E. EVANS, R.S.S.

**H.C.**—F. G. BERRY.—R. DAVIES.—A. E. FELTHAM.—T. G. FELTHAM, R.S.S.—W. PRICE, R.S.S.

**CLASS 209.**—*For Cart Horse Shoeing, by Smiths 25 years of age and over on the day of the competition, who had not previously won the First Prize in a corresponding Class at one of the Society's meetings, or a Champion Prize at any National or County Agricultural Society's Show, on the second day of the Show.* [23 entries.]

**I. (24.)**—E. J. WHITEHORN, R.S.S.

**II. (23.)**—T. NORTHWOOD, A.F.C.L.

**III. (22.)**—C. F. MESSENGER, R.S.S.

**IV. (21.)**—T. G. FELTHAM, R.S.S.

**R. & V.H.C.**—W. ROOKE.

**H.C.**—R. DAVIES.—E. EVANS, R.S.S.—J. HEMMINGS, R.S.S.—H. JONES, R.S.S.—T. PRICE, R.S.S.—W. PRICE, R.S.S.—G. D. WELLAND.

**G.**—V. WALE.—W. U. WHITE, R.S.S.

**CLASS 210.**—*For Shoe Making or Turning, by Smiths under 25 years of age on the day of the competition, the patterns and descriptions of the Shoes being supplied by the Judge, on the fourth day of the Show.* [7 entries.]

**I. (24.)**—A. WILBAND.

**II. (23.)**—W. F. SAUNDERS.

**III. (21.)**—P. DOUBLE.

**IV. (10s.)**—H. RICHARDS.

**R.**—P. ROBERTS.

**G.**—J. L. MATHIAS.

**CLASS 211.**—*For Shoe Making or Turning, by Smiths 25 years of age and over on the day of the competition, the patterns and descriptions of the Shoes being supplied by the Judge, on the fourth day of the Show.* [14 entries.]

**I. (24.)**—W. HOUSE.

**II. (23.)**—E. SAUNDERS, R.S.S.

**III. (22.)**—J. HEMMINGS, R.S.S.

**IV. (21.)**—E. J. WHITEHORN, R.S.S.

**R.**—W. PRICE, R.S.S.

**H.C.**—J. H. BAKER.—E. EVANS, R.S.S.—H. JONES, R.S.S.—R. JONES, R.S.S.—T. NORTHWOOD, A.F.C.L.—T. PRICE, R.S.S.—W. ROOKE.

## POULTRY.

(UNDER POULTRY CLUB RULES).

(The Birds in Classes 1 to 20 and 23 to 51 must have been hatched previous to January 1, 1912.)

**CLASS 1.—ANY DISTINCT BREED, EXCEPT BANTAMS—COCK AND THREE HENS, BRED IN 1910 OR 1911, THE PROPERTY OF ONE EXHIBITOR, MATED FOR BREEDING.** [13 entries.]**I. (£3.)**—G. H. PROCTER, *Cochins*.**II. (£2.)**—W. FIRTH, *Game*.**III. (£1.)**—J. H. BAKER & SON, *Indian Game*.**B.**—S. W. THOMAS, *Brahmas*.**V.H.C.**—MAJOR H. B. BARNES, *Langshans*.—R. WATSON, *Partridge Wyandottes*.**H.C.**—H. CARPENTER, *Black Orpingtons*.—W. L. JEFFERIES, *Black Orpingtons*.—G. W. WORRELL, *Black Orpingtons*.**C.**—W. HUNT, *Indian Game*.**CLASS 2.—COCHIN OR BRAHMA, COCK.** [10 entries.]**I. (£1.)**—G. H. PROCTER, *Cochin*.**II. (15s.)**—G. H. PROCTER, *Cochin*.**III. (10s.)**—W. H. COOK.**B.**—S. W. THOMAS, *Brahma*.**V.H.C.**—H. L. POPHAM, *Brahma*.—A. E. WARD, *Brahma*.**H.C.**—W. H. A. HIGGINS.**CLASS 3.—COCHIN OR BRAHMA, HEN.** [8 entries.]**I. (£1.)**—G. H. PROCTER, *Cochin*.**II. (15s.)**—G. H. PROCTER, *Cochin*.**III. (10s.)**—S. W. THOMAS, *Brahma*.**B.**—J. E. D. MOYSEY, *Cochin*.**V.H.C.**—H. L. POPHAM, *Brahma*.**H.C.**—H. L. POPHAM, *Brahma*.**CLASS 4.—PLYMOUTH ROCK, COCK**—[11 entries.]**I. (£1.)**—T. J. ANDREW.**II. (15s.)**—R. ANTHONY.



**III. (10s.)**—R. SALT.

**R.**—J. M. CHANDLER.

**V.H.C.**—LADY FITZGERALD.—H. SPENSLEY.

**H.C.**—J. VINES.

CLASS 5.—PLYMOUTH ROCK, HEN. [12 entries.]

**I. (£1.)**—T. H. FURNESS.

**II. (15s.)**—J. VINES.

**III. (10s.)**—T. J. ANDREW.

**R.**—J. GREENFIELD & SON.

**V.H.C.**—R. ANTHONY.—J. M. CHANDLER.

**H.C.**—C. TRICKHY.

CLASS 6.—ORPINGTON (BUFF), COCK. [18 entries.]

**I. (£1.)**—W. H. COOK.

**II. (15s.)**—R. ANTHONY.

**III. (10s.)**—S. W. THOMAS.

**R.**—J. WARREN.

**V.H.C.**—C. CAVE.—T. H. FURNESS.—W. H. MITCHELL.—G. PONTING.

**H.C.**—MAJOR H. M. BARNES.—J. W. HUNKING.—MISS MARRIOTT.

CLASS 7.—ORPINGTON (BUFF), HEN. [8 entries.]

**I. (£1.)**—W. H. COOK.

**II. (15s.)**—R. ANTHONY.

**III. (10s.)**—J. W. HUNKING.

**R.**—J. W. HUNKING.

**V.H.C.**—G. PONTING.

**H.C.**—W. NATION.

CLASS 8.—ORPINGTON (BLACK), COCK. [17 entries.]

**I. (£1.)**—T. JAMES.

**II. (15s.)**—W. H. COOK.

**III. (10s.)**—MAJOR H. M. BARNES.

**V.H.C.**—H. CARPENTER.—M. LINDNER.—MRS. M. MOORE.

**H.C.**—J. BAILY & SON.—W. G. FORREST.—H. REES.

CLASS 9.—ORPINGTON (BLACK), HEN. [15 entries.]

**I. (£1.)**—W. L. JEFFERIES.

**II. (15s.)**—MAJOR H. M. BARNES.

**III. (10s.)**—W. H. ATKINS.

**R.**—T. JAMES.

**V.H.C.**—W. H. COOK.—T. C. PINNIGER.

**H.C.**—J. R. CHARLESWORTH.—M. LINDNER.

CLASS 10.—ORPINGTON (WHITE), COCK. [11 entries.]

**I. (£1.)**—W. H. COOK.

**II. (15s.)**—M. LINDNER.

**III. (10s.)**—R. GWYNNE-FURLEY.

**R.**—J. HARRINGTON.

**V.H.C.**—LORD ROTHSCHILD.

**H.C.**—MAJOR H. M. BARNES.

CLASS 11.—ORPINGTON (WHITE), HEN. [13 entries.]

**I. (£1.)**—M. LINDNER.

**II. (15s.)**—R. GWYNNE-FURLEY.

**III. (10s.)**—J. WARREN.

**H.C.**—M. BLOODWORTH.—LORD ROTHSCHILD.

CLASS 12.—MINORCA (BLACK), COCK. [8 entries.]

**I. (£1.)**—A. G. PITTS.

**II. (15s.)**—A. G. PITTS.

**III. (10s.)**—W. H. COOK.

**R.**—FURSLAND BROS.

**H.C.**—A. TUCKER.

CLASS 13.—MINORCA (BLACK), HEN. [8 entries.]

**I. (£1.)**—W. H. COOK.

**II. (15s.)**—FURSLAND BROS.

**III. (10s.)**—A. G. PITTS.

**R.**—W. H. A. HIGGINS.

**V.H.C.**—FURSLAND BROS.

**H.C.**—F. SLATER.

CLASS 14.—MINORCA (WHITE), COCK OR HEN. [5 entries.]

**I. (£1.)**—McFARLAND BROS.

**II. (15s.)**—McFARLAND BROS.

**R.**—J. R. R. MITCHELL.

CLASS 15.—SUSSEX, COCK. [15 entries.]

**I. (£1.)**—N. ERMEN.

**II. (15s.)**—SANDERSON BROS.

**III. (10s.)**—J. BAILY & SON.

**R.**—MRS. G. WHITELEY.

**V.H.C.**—LORD ROTHSCHILD.—F. H. WHEELER.

**H.C.**—W. CUBITT. —LORD ROTHSCHILD.

CLASS 16.—SUSSEX, HEN. [17 entries.]

**I. (£1.)**—J. BAILY & SON.

**II. (15s.)**—W. CUBITT.

**III. (10s.)**—MRS. KINNEAR-BAILLIE.

**V.H.C.**—LORD ROTHSCHILD. —F. H. WHEELER.

**H.C.**—N. ERMEN.—H. C. MARTIN, M.D. —LORD ROTHSCHILD.—DR. J. E. SHAW. —F. H. WHEELER.

CLASS 17. —DORKING (ANY VARIETY), COCK. [7 entries.]

**I. (£1.)**—J. HARRIS.

**II. (15s.)**—MISS A. M. ALEXANDER, *Silver*.

**III. (10s.)**—A. C. MAJOR.

**V.H.C.**—CAPT. G. PHIPPS-HORNBY.

**H.C.**—CAPT. G. PHIPPS-HORNBY.

CLASS 18.—DORKING (ANY VARIETY), HEN. [6 entries.]

**I. (£1.)**—J. HARRIS.

**II. (15s.)**—A. C. MAJOR.

**III. (10s.)**—A. C. MAJOR.

**R.**—H. W. BERRY.

**H.C.**—CAPT. G. PHIPPS-HORNBY.

CLASS 19. —FAVEROLLES, COCK. [7 entries.]

**I. (£1.)**—F. E. POPE.

**II. (15s.)**—F. W. GENTLE.

**III. (10s.)**—G. BETTS.

**V.H.C.**—C. H. BRADLEY.

**H.C.**—T. C. BYRNE.—F. W. GENTLE.—F. E. POPE.

## CLASS 20.—FAVEROLLES, HEN. [7 entries.]

I. (£1.)—G. BETTS.

II. (15s.)—T. C. BYRNE.

III. (10s.)—F. E. POPE.

V.H.C.—C. H. BRADLEY.

H.C.—F. W. GENTLE.—T. H. JONES-PARRY.

## CLASS 21.—COCHIN, BRAHMA, PLYMOUTH ROCK, ORPINGTON, LANGSHAN, SUSSEX OR DORKING—COCKEREL. [11 entries.]

I. (£1.)—R. GWYNNE-FURLEY, *White Orpington*, January 2.II. (15s.)—A. C. MAJOR, *Dorking*, January 2.III. (10s.)—CAPT. AND MRS. SPENCER, *Sussex*, January 4.V.H.C.—H. CARPENTER, *Orpington*, January 4.—J. M. CHANDLER, *Orpington*, January 6.H.C.—R. ANTHONY.—MRS. S. HAYWARD, *White Orpington*, January 5.—CAPT. AND MRS. SPENCER, *Sussex*, January 4.

## CLASS 22.—COCHIN, BRAHMA, PLYMOUTH ROCK, ORPINGTON, LANGSHAN, SUSSEX OR DORKING, PULLET. [11 entries.]

I. (£1.)—W. H. COOK, *Orpington*, January 5.II. (15s.)—R. GWYNNE-FURLEY, *Orpington*, January 2.III. (10s.)—A. C. MAJOR, *Dorking*, January 2.R.—J. M. CHANDLER, *Orpington*, January 6.V.H.C.—LORD ROTHSCHILD, *Orpington*, January 4.—CAPT. AND MRS. SPENCER, *Sussex*, January 4.

H.C.—R. ANTHONY.

## CLASS 23.—LANGSHAN, COCK. [10 entries.]

I. (£1.)—H. WALLIS.

II. (15s.)—R. ANTHONY.

III. (10s.)—R. ANTHONY.

R.—MAJOR H. M. BARNES.

V.H.C.—MAJOR H. M. BARNES.—G. FIELDER.

H.C.—H. WALLIS.

## CLASS 24.—LANGSHAN, HEN. [9 entries.]

I. (£1.)—R. ANTHONY.

II. (15s.)—H. WALLIS.

III. (10s.)—R. ANTHONY.

R.—H. WALLIS.

V.H.C.—MAJOR H. M. BARNES.

H.C.—B. WILKINSON.

CLASS 25.—WYANDOTTE (SILVER OR GOLD LACED), COCK.  
[11 entries.]

- I. (21.)**—H. SPENSLEY.  
**II. (15s.)**—S. CLIMAS.  
**III. (10s.)**—T. H. FURNESS.  
**R.**—MAJOR H. M. BARNES.  
**V.H.C.**—T. C. PINNIGER.  
**H.C.**—J. L. WHYTEHEAD.—R. WILLS.  
**C.**—MRS. WALLIS TITT.

CLASS 26.—WYANDOTTE (SILVER OR GOLD LACED), HEN.  
[9 entries.]

- I. (21.)**—S. CLIMAS.  
**II. (15s.)**—H. SPENSLEY.  
**III. (10s.)**—W. E. H. HANCOCK.  
**R.**—T. H. FURNESS.  
**V.H.C.**—G. H. DALRYMPLE.  
**H.C.**—W. C. FLOWER.—T. C. PINNIGER.

CLASS 27.—WYANDOTTE (WHITE), COCK. [11 entries.]

- I. (21.)**—J. E. D. MOYSEY.  
**II. (15s.)**—T. H. FURNESS.  
**III. (10s.)**—R. ANTHONY.  
**R.**—LADY FITZGERALD.  
**V.H.C.**—G. H. DALRYMPLE.—D. NANCARROW.  
**H.C.**—MRS. E. A. L. GREEN.  
**C.**—R. B. SAUNDERS.

CLASS 28.—WYANDOTTE (WHITE), HEN. [12 entries.]

- I. (21.)**—R. ANTHONY.  
**II. (15s.)**—J. E. D. MOYSEY.  
**III. (10s.)**—D. NANCARROW.  
**R.**—G. H. DALRYMPLE.  
**V.H.C.**—T. H. FURNESS.—F. W. GENTLE.—MRS. E. A. L. GREEN.  
**H.C.**—W. REED.—R. B. SAUNDERS.  
**C.**—MRS. E. A. L. GREEN.—W. NATION.

CLASS 29.—WYANDOTTE (BLACK), COCK. [6 entries.]

- I. (21.)**—W. SHARPE.  
**II. (15s.)**—T. H. FURNESS.  
**III. (10s.)**—A. G. PITTS.  
**R.**—J. ALLSEBROOK.  
**V.H.C.**—E. J. BROWN.  
**H.C.**—W. H. A. HIGGINS.

## CLASS 30.—WYANDOTTE (BLACK), HEN. [7 entries.]

**I. (£1.)**—G. WOOD.**II. (15s.)**—W. SHARPE.**III. (10s.)**—J. ALLSEBROOK.**R.**—T. H. FURNESS.**V.H.C.**—A. G. PITTS.**H.C.**—W. H. A. HIGGINS.

## CLASS 31.—WYANDOTTE (ANY OTHER VARIETY), COCK. [6 entries.]

**I. (£1.)**—R. WATSON.**II. (15s.)**—R. SALT.**III. (10s.)**—R. WATSON.**R.**—S. HURST.**V.H.C.**—H. B. PINNIGER.**H.C.**—W. E. H. HANCOCK.

## CLASS 32.—WYANDOTTE (ANY OTHER VARIETY), HEN. [10 entries.]

**I. (£1.)**—R. WATSON.**II. (15s.)**—H. GUNN.**III. (10s.)**—R. WATSON.**R.**—J. M. BLACKWOOD.**V.H.C.**—H. BROOM.**H.C.**—J. M. BLACKWOOD. —H. B. PINNIGER.**C.**—J. LIPPIATT.

## CLASS 33.—LEGHORN (WHITE), COCK. [7 entries.]

**I. (£1.)**—R. ANTHONY.**II. (15s.)**—T. REES.**III. (10s.)**—J. VINES.**R.**—W. E. GILLING.**V.H.C.**—G. MANNINGS.—REES AND VENABLES.**C.**—REV. R. CHICHESTER.

## CLASS 34.—LEGHORN (WHITE), HEN. [8 entries.]

**I. (£1.)**—R. ANTHONY.**II. (15s.)**—W. PICKARD.**III. (10s.)**—REV. R. CHICHESTER.**R.**—W. H. AVERY.**V.H.C.**—REES AND VENABLES.**H.C.**—J. H. PIMBLEY.—J. H. PIMBLEY.**C.**—REES AND VENABLES.

CLASS 35.—LEGHORN (ANY OTHER VARIETY), COCK. [5 entries.]

**I. (£1.)**—R. ANTHONY.

**II. (15s.)**—E. SIMON.

**R.**—J. JONES.

**V.H.C.**—H. DAVIES.

**H.C.**—W. O. STANBURY.

CLASS 36.—LEGHORN (ANY OTHER VARIETY), HEN. [5 entries.]

**I. (£1.)**—R. ANTHONY.

**II. (15s.)**—F. G. EDWARDS.

**R.**—R. ANTHONY.

**V.H.C.**—REES AND VENABLES.

**H.C.**—R. W. COLE.

CLASS 37.—HAMBURG (BLACK), COCK. [6 entries.]

**I. (£1.)**—C. E. PICKLES.

**II. (15s.)**—R. P. INSALL.

**III. (10s.)**—W. SNELL.

**R.**—M. LINDNER.

CLASS 38.—HAMBURG (BLACK), HEN. [5 entries.]

**I. (£1.)**—C. E. PICKLES.

**II. (15s.)**—W. M. DAVIES.

**R.**—D. W. LEWIS.

**V.H.C.** R. P. INSALL.—W. SNELL.

CLASS 39.—HAMBURG (ANY OTHER VARIETY), COCK.  
[4 entries.]

**I. (£1.)**—C. E. PICKLES.

**II. (15s.)**—MISS ASHWELL.

**R.**—W. SNELL.

CLASS 40.—HAMBURG (ANY OTHER VARIETY), HEN.  
[6 entries.]

**I. (£1.)**—C. E. PICKLES.

**II. (15s.)**—TURTON & SON.

**III. (10s.)**—W. H. AVERY.

**R.**—W. SNELL.

**V.H.C.**—TURTON & SON.

**H.C.**—H. W. BERRY.

**CLASS 41.—OLD ENGLISH GAME (BLACK RED), COCK. [6 entries.]**

- I. (£1.)—W. FIRTH.**  
**II. (15s.)—W. SHARPE.**  
**III. (10s.)—W. FIRTH.**  
**R.—MRS. F. L. RAYNER.**  
**V.H.C.—Q. LE PELLEY.**  
**C.—D. E. LEWIS.**

**CLASS 42.—OLD ENGLISH GAME (BLACK RED), HEN. [5 entries.]**

- I. (£1.)—W. SHARPE.**  
**II. (15s.)—W. FIRTH.**  
**R.—J. E. D. MOYSEY.**  
**V.H.C.—W. FIRTH.—Q. LE PELLEY.**

**CLASS 43.—OLD ENGLISH GAME (ANY OTHER VARIETY), COCK. [8 entries.]**

- I. (£1.)—W. FIRTH.**  
**II. (15s.)—W. FIRTH.**  
**III. (10s.)—Q. LE PELLEY.**  
**R.—J. J. PRITCHARD.**  
**V.H.C.—MAJOR H. M. BARNES.**  
**H.C.—M. LINDNER.—J. E. D. MOYSEY.**  
**C.—MAJOR C. H. CHICHESTER.**

**CLASS 44.—OLD ENGLISH GAME (ANY OTHER VARIETY), HEN. [8 entries.]**

- I. (£1.)—W. FIRTH.**  
**II. (15s.)—MAJOR H. M. BARNES.**  
**III. (10s.)—W. FIRTH.**  
**R.—MAJOR C. H. CHICHESTER.**  
**V.H.C.—MAJOR H. M. BARNES.**  
**H.C.—H. C. MARTIN, M.D.—J. PRIOR.**  
**C.—Q. LE PELLEY.**

**CLASS 45.—INDIAN GAME, COCK. [9 entries.]**

- I. (£1.)—J. H. BAKER & SON.**  
**II. (15s.)—W. FIRTH.**  
**III. (10s.)—E. C. TUCKER.**  
**R.—W. FIRTH.**  
**V.H.C.—F. W. GENTLE.**  
**H.C.—H. W. BERRY.—S. E. PHILLIPS.—J. RAWLINGS, JUN.**



CLASS 46.—INDIAN GAME, HEN. [7 entries.]

I. (21.)—J. H. BAKER & SON.

II. (15s.)—W. FIRTH.

III. (10s.)—H. J. ROBBINS.

R.—F. W. GENTLE.

V.H.C.—W. FIRTH.

H.C.—E. C. TUCKER.

C.—E. COOMBS.

CLASS 47.—FRENCH (EXCLUDING FAVEROLLES), COCK. [7 entries.]

I. (21.)—S. W. THOMAS, *French*.

II. (15s.)—H. EDYE, *Houdan*.

III. (10s.)—S. W. THOMAS, *French*.

R.—H. EDYE, *Houdan*.

V.H.C.—G. HENWOOD, *Creve Cœur*.

H.C.—G. HENWOOD, *La Fleche*.

C.—MISS C. A. D. HAMILTON.

CLASS 48.—FRENCH (EXCLUDING FAVEROLLES), HEN. [6 entries.]

I. (21.)—S. W. THOMAS, *French*.

II. (15s.)—S. W. THOMAS, *French*.

III. (10s.)—H. EDYE, *Houdan*.

R.—H. EDYE, *Houdan*.

V.H.C.—MISS C. A. D. HAMILTON.

H.C.—MISS C. A. D. HAMILTON.

CLASS 49.—ANY OTHER DISTINCT BREED (NOT PREVIOUSLY MENTIONED), COCK. [9 entries.]

I. (21.)—J. FRAYNE, *Malay*.

II. (15s.)—J. F. ENTWISLE, *Sebright*.

III. (10s.)—H. TANNER, *Modern Black Red*.

R.—W. FIRTH, *Modern Game*.

V.H.C.—S. W. THOMAS, *Malines*.

H.C.—H. TANNER, *Modern Black Red*.—R. P. WHEADON, *Spanish*.

C.—W. THOMAS, *Black Red Bantam*.

CLASS 50.—ANY OTHER DISTINCT BREED (NOT PREVIOUSLY MENTIONED), HEN. [5 entries.]

I. (21.)—W. FIRTH, *Game*.

II. (15s.)—J. F. ENTWISLE, *Poland*.

R.—H. TANNER, *Modern Black Red*.

V.H.C.—R. P. WHEADON, *Spanish*.

CLASS 51.—COCK AND HEN, OF ANY PURE BREEDS BEST MATED TO PRODUCE TABLE POULTRY. [8 entries.]

- I. (£1.)—J. R. R. MITCHELL, *Indian Game* and *Dorking*.
- II. (15s.)—G. BETTS.
- III. (10s.)—A. C. MAJOR, *Dorkings*.
- R.—J. R. R. MITCHELL, *Indian Game* and *Dorking*.
- V.H.C.—MRS. S. HAYWARD, *Faverolles*.
- H.C.—REV. H. J. MARSHALL, *Dorkings*.
- C.—MAJOR H. M. BARNES.—F. H. WHEELER, *Indian Game-Sussex*.

CLASS 52.—MINORCA, ANCONA, WYANDOTTE, LEGHORN, HAMBURG, FAVEROLLES OR FRENCH, COCKEREL, HATCHED IN 1912. [13 entries.]

- I. (£1.)—J. R. R. MITCHELL, *Hamburg*, January 2.
- II. (15s.)—R. WATSON, *Partridge Wyandotte*, January 3.
- III. (10s.)—S. W. THOMAS, *French*, January 20.
- R.—J. E. D. MOYSEY, January 1.
- V.H.C.—G. H. DALRYMPLE, *Wyandotte*, January 6.
- H.C.—J. CLARKSON, *Leghorn*, January 1.—C. FORD, *Wyandotte*, January 5.—W. NATION, *White Wyandotte*, January 1.
- C.—H. GUNN.—W. E. H. HANCOCK, *White Wyandotte*, January 20.

CLASS 53.—MINORCA, ANCONA, WYANDOTTE, LEGHORN, HAMBURG, FAVEROLLES OR FRENCH, PULLET, HATCHED IN 1912. [11 entries.]

- I. (£1.)—S. CLIMAS, *Golden Wyandotte*.
- II. (15s.)—S. W. THOMAS, *French*, January 20.
- III. (10s.)—J. R. R. MITCHELL, *Hamburg*, January 2.
- R.—G. H. DALRYMPLE, *Wyandotte*, January 6.
- V.H.C.—C. FORD, *Wyandotte*, January 5.—H. GUNN.—J. E. D. MOYSEY, January 1.
- C.—J. M. CHANDLER, *Wyandotte*, January 6.—B. NANCARROW, *Wyandotte*, January 8.

CLASS 54.—GAME MALAY, OR ANY OTHER DISTINCT BREED (NOT PREVIOUSLY MENTIONED), COCKEREL, HATCHED IN 1912. [1 entry.]

- I. (£1.)—J. H. BAKER & SON, *Indian Game*, January.

CLASS 55.—GAME, MALAY, OR ANY OTHER DISTINCT BREED (NOT PREVIOUSLY MENTIONED), PULLET, HATCHED IN 1912. [4 entries.]

- I. (£1.)—W. J. CAMP, *Indian Game*, February 1.
- II. (15s.)—W. HAMBLBY, *Indian Game*, January 2.

**LIVE TABLE POULTRY.**

**CLASS 56.—PAIR OF COCKERELS OF ANY PURE BREED, HATCHED IN 1912.** [6 entries.]

- I. (£1.)**—G. BETTS, *Faverolles*, January 4.
- II. (15s.)**—J. H. BAKER & SON, *Indian Game*, January.
- III. (10s.)**—J. R. R. MITCHELL, January 2.
- R.**—F. E. POPE, *Faverolles*, January 10.
- V.H.C.**—LORD ROTHSCHILD, *Sussex*, January 4.
- C.**—A. C. MAJOR, *Dorkings*, January 2.

**CLASS 57.—PAIR OF PULLETS OF ANY PURE BREED, HATCHED IN 1912.** [6 entries.]

- I. (£1.)**—J. R. R. MITCHELL, January 2.
- II. (15s.)**—G. BETTS, *Faverolles*.
- III. (10s.)**—LORD ROTHSCHILD, *Sussex*, January 4.
- R.**—J. H. BAKER & SON, *Indian Game*, January.
- V.H.C.**—A. C. MAJOR, *Dorkings*, January 14.

**CLASS 58.—PAIR OF CROSS-BRED COCKERELS, HATCHED IN 1912**  
[6 entries.]

- I. (£1.)**—LADY FITZGERALD, *Indian Game-Orpington*, January 6.
- II. 15s.)**—MRS. S. HAYWARD, *Indian Game-Dorkings*, January 5.
- III. (10s.)**—E. D. HULATT, *Dorking-Indian Game*, February 1.
- R.**—MRS. G. NELSON, *Indian Game-Dorking*, January 7.
- V.H.C.**—J. R. R. MITCHELL, *Wyandotte and Sussex*, January 22.

**CLASS 59.—PAIR OF CROSS-BRED PULLETS, HATCHED IN 1912.**  
[4 entries.]

- I. (£1.)**—MRS. L. HAYWARD, *Indian Game-Dorkings*, January 5.
- II. (15s.)**—LADY FITZGERALD, *Indian Game-Orpington*, January 6.
- R.**—J. R. R. MITCHELL, *Orpington-Faverolle*, January 22.
- V.H.C.**—W. BETTS & SON, *Game-Orpington*, February 3.

**SELLING CLASSES.**

**CLASS 60.—ANY DISTINCT BREED, COCK OR COCKEREL (PRICE NOT TO EXCEED £1 1s.).** [25 entries.]

- I. (£1.)**—S. W. THOMAS.
- II. (15s.)**—H. J. ROBBINS, *Indian Game*.
- III. (10s.)**—R. ANTHONY.
- R.**—G. W. WILBRAHAM, *W andotte*.

**V.H.C.**—W. C. FLOWER, *Wyandotte*.—H. GUNN, *Partridge Wyandotte*.—G. W. WORRELL, *Black Orpington*.

**H.C.**—J. H. BAKER & SON, *Indian Game*.—W. E. GILLING, *White Wyandotte*.—D. J. GRIFFITHS.—T. PARRY, *Black Orpington*.

**C.**—J. R. R. MITCHELL.

CLASS 61.—ANY DISTINCT BREED, HEN OR PULLET (PRICE NOT TO EXCEED £1 1s.). [17 entries].

**I. (£1.)**—W. J. TARR.

**II. (15s.)**—W. FIRTH.

**III. (10s.)**—S. W. THOMAS.

**R.**—J. JONES, *Silver Wyandotte*.

**V.H.C.**—R. ANTHONY.—J. H. BAKER & SON, *Indian Game*.—J. R. R. MITCHELL.—W. SNELL, *Brown Red Game*.

**H.C.**—LADY FITZGERALD, *White Orpington*.—W. C. FLOWER, *Silver*.—J. E. D. MOYSEY.

#### SPECIAL PRIZES.

Given by the Poultry Club under Conditions stated in Year Book of Club.  
Challenge Cups value £10 10s. each.

(a).—*For the best Cock or Cockerel in the Poultry Classes, the property of a member of the Poultry Club.* **I.**—R. WATSON.

(b).—*For the best Hen or Pullet, ditto, ditto.* **I.**—G. H. PROCTER.

Challenge Cups, value £5 5s. each.

(c).—*For the best Orpington, the property of a member of the Poultry Club.* **I.**—W. H. COOK.

(d).—*For the best Wyandotte, ditto, ditto.* **I.**—R. WATSON.

(e).—*For the best Leghorn, ditto, ditto.* **I.**—R. ANTHONY.

(f).—*For the best Plymouth Rock, ditto, ditto.* **I.**—T. H. FURNESS.

(g).—*For the best Minorca, ditto, ditto.* **I.**—A. G. PITTS.

(h).—*For the best Langshan, ditto, ditto.* **I.**—H. WALLIS.

(i).—*For the best Sussex, ditto, ditto.* **I.**—J. BAILY & SON.

*A Gold Medal for best Cock in the Poultry Classes, the property of a member of the Poultry Club.* **I.**—R. WATSON.

*A Gold Medal for the best Hen, ditto, ditto.* **I.**—G. H. PROCTER.

*A Gold Medal for the best Cockerel, ditto, ditto.* **I.**—J. R. R. MITCHELL.

*A Gold Medal for the best Pullet, ditto, ditto.* **I.**—W. H. COOK.

*A Silver Challenge Cup, value £10 10s., for the best bird exhibited in the Poultry Section, the property of a member of the Poultry Club.* G. H. PROCTER.

**DUCKS, GEESE AND TURKEYS.**

CLASS 62.—DRAKE OR DUCK (*Aylesbury*). [10 entries.]

- I. (£1.)**—MRS. R. JONES.  
**II. (15s.)**—R. ANTHONY.  
**III. (10s.)**—J. RAWLINGS, jun.  
**R.**—M. LINDNER.  
**V.H.C.**—LADY FITZGERALD.  
**H.C.**—J. LONGSON & SONS.

CLASS 63.—DRAKE OR DUCK (*Rouen*). [2 entries.]

- I. (£1.)**—R. ANTHONY.  
**R.**—J. E. D. MOYSEY.

CLASS 64.—DRAKE OR DUCK (*Pekin*). [4 entries.]

- I. (£1.)**—R. ANTHONY.  
**II. (15s.)**—W. F. SNELL.  
**R.**—MRS. M. MOORE.  
**H.C.**—L. F. WILLIAMS.

CLASS 65.—GANDER OR GOOSE. [4 entries.]

- I. (£1.)**—W. F. SNELL.  
**II. (15s.)**—W. F. SNELL.  
**R.**—W. F. SNELL.

CLASS 66.—TURKEY, COCK OR HEN. [6 entries.]

- I. (£1.)**—ABBOT BROS.  
**II. (15s.)**—J. FOWLER.  
**III. (10s.)**—ABBOT BROS.  
**R.**—W. F. SNELL.  
**V.H.C.**—LADY FITZGERALD.

**DEAD TABLE POULTRY.**

( Forwarded alive and killed and plucked by a Poulterer acting for the Society.)

CLASS 67.—PAIR OF COCKERELS OF 1912, OF ANY PURE BREED.  
[7 entries.]

- I. (£1.)**—F. H. WHEELER, *Sussex*, January 8.  
**II. (15s.)**—LORD ROTHSCHILD, *Sussex*, January 4.  
**III. (10s.)**—F. H. WHEELER, *Sussex*, January 8.  
**R.**—F. H. WHEELER, *Sussex*, January 8.

CLASS 68.—PAIR OF PULLETS OF 1912, OF ANY PURE BREED.  
[6 entries.]

**I. (£1.)**—J. R. R. MITCHELL, January 2.

**II. (15s.)**—F. H. WHEELER, *Sussex*, January 8.

**III. (10s.)**—F. H. WHEELER, *Orpingtons*, January 8.

**R.**—F. H. WHEELER, *Sussex*, January 8.

**V.H.C.**—MRS. L. FURNEY, *Concons Malines*, January 2.

CLASS 69.—PAIR OF CROSS-BRED COCKERELS OF 1912. [4 entries.]

**I. (£1.)**—F. H. WHEELER, *Sussex-Orpingtons*, January 8.

**II. (15s.)**—F. H. WHEELER, *Sussex-Orpingtons*, January 8.

**R.**—MRS. S. HAYWARD, *Indian Game-Dorkings*, January 5.

CLASS 70.—PAIR OF CROSS-BRED PULLETS OF 1912. [2 entries.]

**I. (£1.)**—F. H. WHEELER, *Sussex-Orpingtons*, January 8.

**R.**—MRS. S. HAYWARD, *Indian Game-Dorkings*, January 5.

CLASS 71.—PAIR OF DUCKLINGS OF 1912. [4 entries.]

**I. (£1.)**—J. R. R. MITCHELL, March 14.

**II. (15s.)**—J. R. R. MITCHELL, March 7.

**R.**—J. R. R. MITCHELL, March 14.

## FORESTRY.

CLASS 1.—FOR A GENERAL COLLECTION OF EXHIBITS ILLUSTRATIVE OF FORESTRY. [4 entries.]

**I. (Gold Medal).**—THE DUKE OF WELLINGTON, K.G., Stratfield Saye, Hants.

**II. (Silver Medal).**—DAME E. F. SMYTH, Ashton Court Estate, Somerset.

**III. (Bronze Medal).**—EARL STANHOPE, Chevening House, near Sevenoaks, Kent.

CLASS 2.—FOR BOARDS OF SCOTS PINE (*Pinus sylvestris*). [4 entries.]

**I. (Silver Medal).**—THE EARL OF CARNARVON, Highclere Castle, Newbury.

**II. (Bronze Medal).**—SIR C. T. D. ACLAND, BART., Holnicote, Allerford, Somerset.

CLASS 3.—FOR BOARDS OF LARCH (*Larix europæa*). [4 entries.]

**I. (Silver Medal).**—THE EARL OF CARNARVON, Highclere Castle, Newbury.

**II. (Bronze Medal).**—MISS EMILY C. TALBOT, Margam Park, Glamorganshire.

CLASS 4.—FOR BOARDS OF NORWAY SPRUCE (*Picea excelsa*). [2 entries.]

**I. (Silver Medal).**—THE EARL OF CARNARVON, Highclere Castle, Newbury.

*Prizes awarded for Forestry and Nature Study Exhibits.* lxxxvii

CLASS 5.—FOR BOARDS OF ASH (*Frazinus Excelsior*), OAK (*Quercus robur*), AND ELM (*Ulmus 'ampestris*). [2 entries.]

I. (Silver Medal).—SIR C. T. D. ACLAND, BART., Holnicote, Allerford, Somerset.

CLASS 6.—FOR BOARDS OF ANY THREE NON-CONIFEROUS TIMBERS OTHER THAN THE ABOVE. [3 entries.]

I. (Silver Medal).—MISS EMILY C. TALBOT, Margam Park, Glamorganshire—Boards of Poplar, Chestnut and Beech.

CLASS 7.—FOR A 9-FT. FIELD GATE, MANUFACTURED UPON AN ESTATE FROM HOME-GROWN TIMBER, SHOWN IN WORKING ORDER. THE WOOD MUST NOT BE DRESSED WITH A PRESERVATIVE, CREOSOTED, OR PAINTED. [5 entries.]

I. (Silver Medal).—THE EARL OF CARNARVON, Highclere Castle, Newbury.

II. (Bronze Medal).—SIR C. T. D. ACLAND, BART., Holnicote, Allerford, Somerset.

H.C.—DAME E. F. SMYTH, Ashton Court Estate, Somerset.

CLASS 8.—FOR EXHIBITS ILLUSTRATIVE OF FORESTRY CONTRIBUTED BY INSTITUTIONS OR BY ESTATES NOT DESIROUS OF ENTERING IN COMPETITIVE CLASSES. [5 entries.]

V.H.C.—THE MARQUIS OF BATH, Longleat, Warminster.

V.H.C.—ROYAL BOTANIC GARDENS, Kew.

V.H.C.—NATIONAL FRUIT AND CIDER INSTITUTE, Long Ashton, near Bristol.

## NATURE STUDY.

Certificates of Merit were awarded to :—

BATH EDUCATION AUTHORITY ELEMENTARY SCHOOLS.

BURTON J. H., Agricultural Department, County Education Office,  
Weston-super-Mare.

NORRIS F. DE LA MARE, Tula, Newbridge Hill, Bath.

SEXEY'S SCHOOL, BLACKFORD.

SHEPTON MALLET GRAMMAR SCHOOL.

SUNNY HILL GIRLS' SCHOOL, BRUTON.

SOMERSET COUNTY EDUCATION COMMITTEE SECONDARY SCHOOLS.

SOMERSET COUNTY EDUCATION COMMITTEE (including Bathford)  
ELEMENTARY SCHOOLS.

SWINDON EDUCATION COMMITTEE.

WELLS BLUE SCHOOL (GIRLS).

WILTS GENERAL EDUCATION COMMITTEE, TROWBRIDGE.

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## Bath and West and Southern Counties Society.

### OBJECTS OF THE SOCIETY AND PRIVILEGES OF MEMBERSHIP.

#### ANNUAL EXHIBITIONS.

THE Society annually holds an Exhibition in some city or town in England or Wales. Each section of the Society's district is visited at intervals, so that most Members have an opportunity of seeing the Show in their own neighbourhood every few years. Prizes to a large amount are given for Horses, Cattle, Sheep, Pigs, Farm Produce, &c. Provision is also made for the exhibition of Agricultural Implements and Machinery, Seeds, Cattle Foods, Artificial Manures, and articles of general utility. A substantially built and completely equipped Working-Dairy on a large scale is a special feature of these Exhibitions. Here explanatory demonstrations, and comparative tests of implements and processes are carried on with the assistance of well-known practical and scientific experts, and Butter-making Competitions are held. Among the features of the Annual Meeting are Shoeing, Milking and other Competitions, Poultry and Horticultural Shows, and Exhibitions illustrative of Bee-keeping, Home Industries, Art-Manufactures, Nature Study and Forestry.

*Membership entitles to free admission to the Annual Exhibition, and also to the Grand Stand overlooking the Horse and Cattle Ring, to the Reserved Seats in the Working Dairy, and to the use of the Members' Special Pavilion for Reading, Writing, &c.*

*Entries can be made by Members (elected on or before the last Tuesday in January preceding the Show) at half the Fees payable by Non-Members.*

#### THE JOURNAL.

*All Members receive free of charge the Society's Journal, which is published annually bound in cloth. It has for its aim the dissemination of agricultural knowledge in a popular form, and in addition to original articles by well-known agricultural authorities, it contains particulars of the Society's general operations, full reports of its experimental and research work, prize awards, financial statements, lists of Members, reviews of new books on agriculture, &c. (The price of the Journal to non-Members is 6s. 4d. post free.)*

#### CHEMICAL AND OTHER FACILITIES.

The Society has a Consulting Chemist, *from whom Members can obtain analyses and reports at reduced rates of charge.* An arrangement has also been made under which Members of the Society can obtain, free of charge, from the National Fruit and Cider Institute at Long Ashton, analyses of cider-apples and perry-pears, and with a view to assisting farmers and others in dealing with insect and other pests which affect agriculture, horticulture, &c., the Council have availed themselves of an offer from the Board of Economic Biology of the University of Bristol, to investigate the nature of any insect or other pest and report upon it free of charge.

#### EXPERIMENTS.

Experiments on crops are conducted at experimental stations in various parts of the Kingdom, and *Members are enabled to take part in these and to receive reports thereon.*



### **ART-MANUFACTURES, NATURE STUDY, FORESTRY, &c.**

One of the objects for which the Society was founded was the encouragement of Arts as well as Agriculture. and, to this end, exhibitions are held of Art-Manufactures and of work representative of Arts and Handicrafts. Exhibitions are also held illustrating Nature Study, as a branch of Education: the Science of Forestry, &c.

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### **TERMS OF MEMBERSHIP.**

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#### **ANNUAL SUBSCRIPTIONS.**

Governors, not less than	..	..	..	£2
Ordinary Members, not less than	..	..	..	£1
Tenant Farmers, the rateable value of whose holdings does	} 10s.			
not exceed £200 a-year, not less than				

Governors who are eligible for election as President, or Vice-President, are entitled, in addition to the privileges already mentioned, to an extra Season Ticket for the Annual Exhibition and to the Grand Stand, &c. Governors subscribing more than £2 are entitled to a further Ticket for every additional £1 subscribed.

Members subscribing less than £1 are entitled to all the privileges of Membership except that of entering Stock at reduced fees, and their admission Ticket for the Annual Show is available for *one day only* instead of for the whole time of the Exhibition.

#### **LIFE COMPOSITIONS.**

Governors may compound for their Subscription for future years by payment, in advance, of £20; and Members by payment, in advance, of £10. Governors and Members who have subscribed for twenty years may become Life Members on payment of half these amounts.

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Any person desirous of joining the Society can be proposed by a Member, or by

THOS. F. PLOWMAN,

Secretary and Editor,

3, Pierrepont Street, Bath.

**Telegraphic Address—"PLOWMAN, BATH."**

**Telephone No. 610.**

# Bath and West and Southern Counties Society.

## GENERAL LAWS.

*As revised in accordance with the Report of a Special Committee ; which Report was received and adopted by the Annual General Meeting of Members, held on May 30, 1895.*

## COMPOSITION OF THE SOCIETY.

I. The Society shall consist of a President, Vice-Presidents, Trustees, Council, Treasurer, Secretary, and Members.

## OBJECTS.

II. The Society shall have the following objects :—

- a. To hold Exhibitions of breeding stock, agricultural implements, and such other articles connected with agriculture, arts, manufactures or commerce, as may be determined upon by the Council.
- b. To conduct practical and scientific investigations in agriculture.
- c. To promote technical education in agriculture by providing means of systematic instruction.
- d. To publish a Journal for circulation.

## SUBSCRIPTIONS.

III. The Annual Subscription for Members shall be as follows :—

Governors (who are eligible for election as President or Vice-President), not less than .. .. .	£2
Ordinary Members, not less than .. .. .	£1
Tenant Farmers (the rateable value of whose holdings does not exceed £200 a-year), not less than .. .. .	10s.

IV. The payment of £20 in one sum shall constitute a Governor for life, and of £10 in one sum an Ordinary Member for life ; but any Governor who has subscribed not less than £2 annually for a period of twenty years may become a Life Governor on the further payment of £10 in one sum ; and any Ordinary Member, who has subscribed not less than £1 annually for the same period may become a Life-Member on the further payment of £5 in one sum.

V. Subscriptions shall become due and be payable in advance on the 1st of January in each year or as soon as the Subscriber has been elected a Member. When the election takes place during the last quarter of the year the subscription payable on election will be considered as applying to the ensuing year.

VI. A Member shall be liable to pay his subscription for the current year unless he shall have given notice, in writing, to the Secretary before January 1st of his intention to withdraw.

## GOVERNING BODY.

VII. The entire management of the Society—including the making of Bye-laws, election of Members, determining the Prizes to be awarded, appointing Committees, fixing the Places of Meetings and Exhibitions, appointing or removing the Treasurer, Secretary, and such other officers as may be required to carry on the business of the Society—shall be vested in the Council, who shall report its proceedings at the Annual Meetings of the Society.

VIII. The Council shall consist of the Patron (if any), President, Vice-Presidents, Trustees, and Treasurer (who shall be *ex-officio* Members), and of sixty-six elected Members.

### **ELECTION OF PRESIDENT, VICE-PRESIDENTS, TRUSTEES, AND COUNCIL.**

IX. The election of a President for the year, of any additional Vice-Presidents or Trustees, and of the Members of Council representing the Divisions named in Law X., shall take place at the Annual Meeting of the Society, and they shall enter into office at the conclusion of the Exhibition during which such Annual Meeting has been held.

X. The sixty-six Members of the Council referred to in Laws VIII. and IX. shall consist of fifty-eight persons residing or representing property in the following Divisions, viz. :—

Twelve from the Counties of Devon and Cornwall, which shall be called the Western Division ;

Twenty-four from the Counties of Somerset, Dorset, and Wilts, which shall be called the Central Division ;

Twelve from the Counties of Hants, Berks, Oxon, Bucks, Middlesex, Surrey, Sussex, and Kent, which shall be called the Southern Division ; and

Ten from the Counties of Worcester, Gloucester, Hereford and Monmouth, and the Principality of Wales, which shall be called the North-Western Division.

The remaining eight shall be elected (irrespective of locality) from the general body of members, and shall form a Division which shall be called the " Without Reference to District " Division.

XI. One-half of the elected Members in each of the five Divisions named in Law X. shall retire annually by rotation, but shall be eligible for re-election.

XII. The Council shall have power to nominate a President, Vice-Presidents, Trustees, and Members of Council for the approval of the Annual Meeting, and to fill up such vacancies in their own body as are left after the Annual Meeting, or as may from time to time occur during the interval between the Annual Meetings.

XIII. Nominations to offices, election to which is vested in the whole body of Members, must reach the Secretary ten days before the meeting at which such vacancies are to be filled up.

### **MEETINGS.**

XIV. The Annual Meeting of the Society shall take place during the holding of the annual Exhibition.

XV. Special General Meetings of the Society may be convened by the President on the written requisition of not less than three Members of Council ; and all Members shall have ten days' notice of the object for which they are called together.

XVI. No Member of less than three months' standing, or whose subscription is in arrear, shall be entitled to vote at a Meeting.

### **EXHIBITIONS.**

XVII. The Annual Exhibitions of the Society shall be held in different Cities or Towns in successive years.

XVIII. All Exhibitors shall pay such fees as may be fixed by the Council. Members subscribing not less than £1 per annum, who have been elected previous to February 1st, and have paid the subscription for the current year, shall be entitled to exhibit at such reduction in these fees as the Council shall determine.

**PRIZES.**

XIX. All prizes offered at the cost of the Society shall be open for competition to the United Kingdom.

XX. No person intending to compete for any prize offered at the annual Exhibition shall be eligible to act as a judge or to have any voice in the selection of judges to award the premiums in the department in which he exhibits.

XXI. If it be proved to the satisfaction of the Council that any person has attempted to gain a prize in this, or in any other society, by a false certificate or by a misrepresentation of any kind, such person shall thereupon be, for the future, excluded from exhibiting in this Society.

**JOURNAL.**

XXII. The Proceedings of the Society, Awards of Prizes, Financial Statements and Lists of Officers, Governors, and Members, shall be printed annually in the Society's Journal, and every Governor and Member, not in arrear with his subscription, shall be entitled to receive one copy, free of expense, and there shall be an additional number printed for sale.

**POLITICS.**

XXIII. No subject or question of a political tendency shall be introduced at any Meeting of this Society.

**ALTERATIONS IN LAWS.**

XXIV. No new General Law shall be made or existing one altered, added to, or rescinded, except at an Annual or Special General Meeting, and then only provided that a statement of particulars, in writing, shall have been sent to the Secretary at least twenty-one days previous to the Meeting at which the question is to be considered.

## List of Officers.

1912-1913.

## TRURO MEETING.

### PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

### PRESIDENT FOR 1912-1913.

THE RIGHT HON. THE VISCOUNT FALMOUTH.

### TRUSTEES.

\*BATH, THE MARQUIS OF, Longleat, Warminster.  
ACLAND, SIR C. T. D., BART., Killerton, Exeter.  
EDWARDS, C. L. F., The Court, Axbridge, Somerset.

### VICE-PRESIDENTS.

ACLAND, SIR C. T. D., Bart.	Killerton, Exeter
ALLEN, J. D.	Springfield House, Shepton Mallet
BADCOCK, H. J.	Broadlands, Taunton
*BATH, MARQUIS OF	Longleat, Warminster
*BEAUFORT, DUKE OF	Badminton, Chippenham
BENYON, J. HERBERT	Englefield House, Reading
*BUTE, THE MARQUIS OF	The Castle, Cardiff
*CLARENDON, EARL OF	The Grove, Watford
*CLINTON, LORD	Heanton Satchville, Dolton, N. Devon
*COVENTRY, EARL OF	Croome Court, Severn Stoke, Worcester
*DARNLEY, EARL OF	Cobham Hall, Kent
DEVONSHIRE, DUKE OF	Chatsworth, Derbyshire
*DIGBY, LORD	Minterne, Cerne Abbas
*DUCIE, EARL OF	Tortworth, Falfield, R.S.O.
EDWARDS C. L. F.	The Court, Axbridge, Somerset
FITZ HARDINGE, LORD	Cranford, Hounslow
HOBHOUSE, RIGHT HON. H.	Hadspen House, Castle Cary
*JERSEY, EARL OF	Middleton Park, Bicester, Oxon
*LANSDOWNE, MARQUIS OF, K.G.	Bowood, Calne
*LLEWELYN, SIR J. T. D., Bart.	Penllergare, Swansea
MORETON, LORD	Sarsden House, Chipping Norton
*MOUNT-EDGCUMBE, EARL OF	Mount Edgcumbe, Devonport
NEVILLE-GRENVILLE, R.	Butleigh Court, Glastonbury
NORTHUMBERLAND, DUKE OF	Albury Park, Guildford

\* Those to whose names an asterisk (\*) is prefixed have filled the office of President.

VICE-PRESIDENTS—*continued.*

*PLYMOUTH, EARL OF . . . .	Hewell Grange, Bromsgrove
*PORTMAN, VISCOUNT . . . .	Bryanston, Blandford
*RADNOR, EARL OF . . . .	Longford Castle, Salisbury
SHELLEY, SIR J., Bart. . . .	Shobrooke Park, Crediton
SMITH HON. W. F. D. . . .	Greenlands, Henley-on-Thames
SOMERSET, DUKE OF . . . .	Maiden Bradley, Bath
STRACHIE, LORD . . . .	Sutton Court, Pensford, Somerset
*TREDEGAR, VISCOUNT . . . .	Tredegar Park, Newport, Monmouth
WALERAN, LORD . . . .	Bradfield, Cullompton
WILLIAMS, E. W. . . .	Herrington, Dorchester

THE LORD WARDEN OF THE STANNARIES.

THE SURVEYOR-GENERAL OF THE DUCHY OF CORNWALL.

THE RECEIVER-GENERAL OF THE DUCHY OF CORNWALL.

\*.\* Those to whose names an asterisk (\*) is prefixed have filled the office of President.

# MEMBERS OF COUNCIL.

## EX-OFFICIO MEMBERS.

THE PATRON.  
THE PRESIDENT.

THE VICE-PRESIDENTS.  
THE TRUSTEES.  
THE TREASURER.

## ELECTED MEMBERS.

### WESTERN DIVISION (DEVON AND CORNWALL).

(12 Representatives.)

Elected in 1911.		Elected in 1912.	
Name.	Address.	Name.	Address.
BOSCAWEN, Rev. A. T.	Ludgvan Rectory, Long Rock, B.S.O., Cornwall	BUCKINGHAM, REV. F. F.	The Rectory, Doddiscombsleigh, Exeter
DAW, J. E.	Exeter	DEVON, EARL OF	Powderham Castle, Devon
LEVERTON, W.	Woolleigh Barton, Beaford, N. Devon	GIBBS, A. H.	Pytte, Clyst St. George, Topsham, Devon
LOPES, SIR HENRY	Maristow, Roborough, S. Devon	MOORE-STEVENS, COL. R. A.	Winscott, Torrington, Devon
MARTYN G.	Llakeard, Cornwall	SMYTH OSBOURNE, J. S.	Ash, Idlesleigh, Devon
SILLIVANT, A. O.	Culm Leigh, Stoke Canon, Exeter	STUDDY, T. E.	Mazonet, Stoke Gabriel, Totnes

### CENTRAL DIVISION (SOMERSET, DORSET, AND WILTS.)

(24 Representatives.)

CLARK W. H.	Rutland Cottage, Combe Down, Bath	COLES, CARY	Manor House, Winterbourne Stoke, Salisbury
FARWELL, E. W.	11, Laura Place, Bath	GIBSON, J. T.	Claverham, Yatton
GIBBONS, G.	Tunley Farm, near Bath	LLEWELLYN, COL. E. H.	The Court Farm, Langford, Bristol
GORDON, G. H.	The Barn House, Sherborne, Dorset	MAULE, M. St. J.	Chapel House, Bath
HILL, V. T.	Mendip Lodge, Langford, Bristol	MILES, SIR H., Bart.	Abbotsleigh, Bristol
HOARE, SIR H. H. A., Bart.	Stourhead, Zeals, S.O., Wilt	NAPIER, H. B.	Long Ashton, Clifton, Bristol
HURLF, J. C.	Brington Hill, Bristol	PARRY-OKEDEN, J.T.-COL. U. E. P.	Turnworth, Blandford, Dorset
PHIPPS, C. N. P.	Chalcot, Westbury, Wilt	SANDERS, R. A., M.P.	Barwick House, Yeovil
RAWLENCE, E. A.	Newlands, Salisbury	SHERSTON, MAJOR C. D.	Evercreech, Bath
SMITH, A. J.	Brooklea, St. Anne's Park, Bristol	SKERINE, COL. H. M.	Warleigh Manor, Bath
SOMERVILLE, A. F.	Dinder House, Wells	TUDWAY, C. C.	The Cedars, Wells, Somt.
WHITE, A. R.	Charnage, Mere, Wilt	WYNFORD, LORD	Warmwell, Dorchester

### SOUTHERN DIVISION (HANTS, BERKS, OXON, BUCKS, MIDDLESEX, SURREY, SUSSEX AND KENT.)

(12 Representatives.)

ASHCROFT, W.	13, The Waldrons, Croydon	BEST, CAPT. T. G.	Redrice, Andover, Hants
COBB, H. M.	Higham, Kent	BYNG, COL. HON. C.	Deerhurst Lyndhurst, Hants
CUNDALL, H. M., I.S.O.	4, Marchmont Gardens, F.S.A. Richmond, Surrey	JERVOISE, F. H. T.	Herriard Park, Basingstoke
DRUMMOND, H. W.	3, Bryanston Square, London, W.	LATHAM, T.	Dorchester, Oxon
LLEWELLYN L. T. E.	Hackwood, Basingstoke	RUTHERFORD, J. A.	Highclere Estate Office, Newbury
SUTTON, M. J.	Holme Park, Sonning, Berks		

### NORTH-WESTERN DIVISION (WORCESTERSHIRE, GLOUCESTERSHIRE, HEREFORDSHIRE, MONMOUTHSHIRE AND WALES.)

(10 Representatives.)

ALEXANDER, D.	Cardiff	BEST, CAPT. W.	Vivod, Llangollen
ALEXANDER, H. G.	5, High Street, Cardiff	CHESTER MASTER, COL. T. W.	Knole Park, Almondsbury
BAKER, G. E. LLOYD	Hardwicke Court, Gloucester	COTTERELL, SIR J., Bart.	Garnons, Hereford
BATHURST, C., M.P.	Lydney Park, Gloucester	LIPSCOMB, G.	Margam Park Estate Office, Port Talbot
DRUMMOND Major F. D. W.	Cawdor Estate Office, Carmarthen	MASON, F. F.	Swansea

### WITHOUT REFERENCE TO DISTRICT DIVISION.

(8 Representatives.)

EVANS H. M. G.	Plassasa, Llangenueth, Carmarthen	ALLSBEROOK, A.	Link Elm, Malvern Link
WILLIAMS JESTYN	Llanover Estate, Newport, Mon.	KNOLLYS, G. R.	Weekley, Kettering
		NICHOLS, G.	49, Broad Street, Bristol
		STORRAR, J. I.	Grittleton, Chippenham

## STANDING COMMITTEES, 1912-1913.

[The PRESIDENT is *ex-officio* Member of all Committees.]**ALLOTMENT.**EDWARDS, C. L. F., *Chairman.*

BATH, MARQUIS OF	GIBBONS, G.	STUDDY, T. E.
BEST, CAPT. W.	NAPIER, H. B.	WYNFORD, LORD
BYNG, COL. HON. C.		

**CONTRACTS.**NAPIER, H. B., *Chairman.*

BATH, MARQUIS OF	EDWARDS, C. L. F.	NEVILLE-GRENVILLE, R.
BEST, CAPT. W.	MASON F. F.	SMITH, A. J.
DAW, J. E.	MILES, SIR H. BART.	STUDDY, T. E.

**DAIRY**ACLAND, SIR C. T. D., Bart., *Chairman.*

ALLEN, J. D.	HURLE, J. COOKE	NEVILLE-GRENVILLE, R.
ASHCROFT, W.	KNOLLYS, C. R.	SOMERVILLE, A. F.
BOSCAWEN, REV. A. T.	LATHAM, T.	STRACHIE LORD
CLARK, W. H.	LLEWELLYN, COL. E. H.	TUDWAY, C. C.
GIBBONS, G.	LLEWELLYN, L. T. E.	WHITE, A. R.
GIBSON, J. T.	NAPIER, H. B.	

**DISQUALIFYING.**

THE STEWARDS OF LIVE STOCK AND PRODUCE.

**EXPERIMENTS AND EDUCATION.**ACLAND, SIR C. T. D., Bart., *Chairman.*

ALLEN, J. D.	GIBSON, J. T.	PHIPPS, C. N. P.
ASHCROFT, W.	HOBHOUSE, RT. HON. H.	RAWLENCE, E. A.
BAKER, G. E. LLOYD	HURLE, J. COOKE	RUTHERFORD, J. A.
BATHURST, C., M.P.	KNOLLYS, C. R.	SMYTH-OSBOURNE, J. S.
BENYON, J. H.	LATHAM, T.	SOMERVILLE, A. F.
GIBBONS, G.	NEVILLE-GRENVILLE, R.	SUTTON, M. J.

(With power to add to their number.)

**FINANCE.**NAPIER, H. B., *Chairman.*

GIBBS, A. H.	LLEWELLYN, COL. E. H.	PHIPPS C. N. P.
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**FORESTRY.**LIPSCOMB, G., *Chairman.*

ACLAND, SIR C. T. D., Bart.	DRUMMOND, MAJOR F. D. W.	NAPIER, H. B.
CLINTON, LORD	EVANS, H. M. G.	NOBLE, G. F.
		RUTHERFORD, J. A.



**IMPLEMENT REGULATIONS.**

SHELLEY, SIR J., Bart., *Chairman.*

ACLAND, SIR C. T. D., Bart.	EDWARDS, C. L. F. GIBBONS, G.	NAPIER, H. B.
BATH, MARQUIS OF	MOORE-STEVENS, COL.	NEVILLE-GRENVILLE, R.
BEST, CAPT. W.	R. A.	STUDDY, T. E.

**JOURNAL.**

ACLAND, Sir C. T. D., Bart., *Chairman.*

BAKER, G. E. LLOYD	HOBHOUSE, RIGHT HON. H.
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**JUDGES' SELECTION.**

SILLIFANT, A. O., *Chairman.*

ALEXANDER, D.	LATHAM, T.	PARRY-OKEDEN, LIBUT.-
ALLEN, J. D.	MASTER, COL. T. W. C.	COL. U. E. P.
ASHCROFT, W.	MOORE-STEVENS, COL.	PHIPPS, C. N. P.
BYNG, COL. HON. C.	R. A.	SHELLEY, SIR J., Bart.
GIBBONS, G.		WYNFORD, LORD

**RAILWAY ARRANGEMENTS AND ADVERTISEMENTS.**

, *Chairman.*

ALEXANDER, D.	DRUMMOND, H. W.	MASON, F. F.
COVENTRY, EARL OF	LLEWELLYN, COL. E. H.	SHELLEY SIR J., Bart.

(With power to add to their number.)

**SCIENCE AND ART.**

BATH, MARQUIS OF, *Chairman.*

ACLAND, SIR C. T. D., Bart.	FARWELL, E. W.	LLEWELYN, SIR J. T. D., Bart.
CUNDALL, H. M. (I.S.O., F.S.A.)	HOBHOUSE, RT. HON. H.	NAPIER, H. B.
DAW, J. E.	LEGARD, A. G.	RUTHERFORD, J. A.
	LIPSCOMB, G.	

(With power to add to their number.)

**SELECTION.**

THE CHAIRMEN OF ALL OTHER COMMITTEES.

**SHOW PLACE AND DATE.**

CHAIRMEN OF THE ALLOTMENT, CONTRACTS, DAIRY, FINANCE, FORESTRY,  
IMPLEMENT REGULATIONS, RAILWAY ARRANGEMENTS, SCIENCE AND ART,  
AND STOCK PRIZE SHEET COMMITTEES.

(With power to add two Local Members to their number.)

**STOCK PRIZE SHEET.**

SILLIFANT, A. O., *Chairman.*

ALEXANDER, D.	CLARK W. H.	MILES, SIR H., BART.
ALEXANDER, H. G.	COTTERELL, SIR J., Bart.	MOORE STEVENS, Col.
ALLEN, J. D.	GIBBONS, G.	R. A.
ALLSEBROOK, A.	HOARE, SIR H. H. A., Bart.	SHELLEY, SIR J., Bart.
ASHCROFT, W.	LATHAM, T.	WYNFORD, LORD
BUCKINGHAM, REV. F. F.	LEVETON, W.	
BYNG, COL. HON. C.		

**WORKS.**EDWARDS, C. L. F., *Chairman.*BATH, MARQUIS OF  
BEST, CAPT. W.NAPIER, H. B.  
STUDDY, T. E.**Stewards.***Cattle, Sheep and Pigs.*BYNG, COL. HON. C.  
ASHCROFT, W.  
MOORE-STEVENS, COL. R. A.*Cider.*

FARWELL, E. W.

*Dairy.*

GIBBONS, G.      SOMERVILLE, A. F.

*Experiments.*

ASHCROFT, W.

*Finance.*NAPIER, H. B.      LLEWELLYN,  
GIBBS, A. H.      COL. F. H.  
                         PHIPPS, C. N. P.*Forestry.*

LIPSCOMB, G.

*Horses.*ALEXANDER, D.  
WYNFORD, LORD*Horticulture.*

BOSCAWEN, REV. A. T.

*Music.*

CUNDALL, H. M. (I.S.O., F.S.A.)

*Poultry.*

STUDDY, T. E.

*Science and Art.*

CUNDALL, H. M. (I.S.O., F.S.A.)

*Shoeing.*

LATHAM, T.

*Yard.*EDWARDS, C. L. F.  
BEST, CAPT. W.  
BATH, MARQUIS OF  
STUDDY, T. E.**Other Honorary Officials.***Treasurer*—LUTTRELL, C. M. F.*Chaplain.*

BOSCAWEN, REV. A. T.

**Permanent Officials.***Secretary and Editor*—PLOWMAN, THOMAS F.*Associate Editor.*

LLOYD, F. J. (F.C.S.)

*Auditor.*GOODMAN, F. C. (*Chartered Accountant*)*Consulting Chemist.*

VOELCKER, DR. J. A. (M.A., F.I.C.)

*Veterinary Inspector.*

PENBERTHY, PROF. J. (F.R.C.V.S.)

*Superintendent of Works:*

AYRE, H. C.

## Annual Exhibitions.

Year.	Place Visited.	Local Subscrip- tion.	Prizes.			President.	Admissions.		
			Local Com- mittee.	Local Societies.	Local Rea- denda.		On 2/6 Days.	On 1/ Days.	Total.
		£	£	£	£				
1855	Tiverton	450	..	..	£ 450	Earl Fortescue	..	..	..
1856	Yeovil	450	..	..	450	C. A. Moody, M.P.	..	..	..
1857	Newton Abbot	700	..	..	700	Lord Courtenay	..	..	..
1858	Cardiff	800	..	..	800	Lord Courtenay	..	..	..
1859	Barnstaple	800	85	..	966	John Sillifant	..	..	..
1860	Dorchester	900	..	..	900	Lord Rivers	10,709	11,949	22,658
1861	Truro	900	..	..	900	J. W. Buller, M.P.	15,201	14,220	29,421
1862	Wells	900	..	..	900	Sir T. D. Acland, Bart.	10,578	4,775	15,353
1863	Exeter	900	..	..	900	Marquis of Bath	15,635	19,284	34,919
1864	Bristol	1000	106	..	1156	Earl Fortescue	22,377	65,678	88,055
1865	Hereford	900	358	..	1258	Lord Taunton	16,575	35,261	51,836
1866	Salisbury	900	..	..	957	(Earl of Portsmouth	7,288	18,737	26,025
1867	Salisbury	..	57	..	..	(J. Tremayne	7,502	16,702	24,204
1868	Falmouth	900	..	..	900	Sir J. T. B. Duckworth, Bart.	11,393	19,495	30,888
1869	Southampton	900	132	..	1050	Earl of Carnarvon	15,340	41,290	56,630
1870	Taunton	900	..	..	900	Sir S. H. Northcote, Bart., C.B., M.P.	17,952	33,653	51,605
1871	Guildford	900	110	..	1010	Earl of Cork	12,791	21,517	34,308
1872	Dorchester	800	..	..	810	Duke of Marlborough, K.G.	16,665	45,744	62,409
1873	Plymouth	800	..	400	1200	Earl of Mount-Edgumbe.	37,329	72,791	110,120
1874	Bristol	800	403	..	1203	Sir Massey Lopes, Bart., M.P.	14,518	26,028	40,546
1875	Croydon	800	245	..	1045	R. Benyon, M.P.	16,396	32,645	49,041
1876	Hereford	800	381	..	1181	Earl of Ducie	27,625	48,852	76,477
1877	Bath	800	215	..	1015	Marquis of Lansdowne	12,414	26,995	39,409
1878	Oxford	800	..	170	976	Earl of Jersey	14,634	40,533	55,167
1879	Exeter	800	..	..	810	Earl of Morley	8,415	37,675	46,090
1880	Worcester	800	254	..	1054	Earl of Coventry	13,368	33,236	46,604
1881	Tunbridge Wells	800	245	34	1079	Marquis of Abergavenny	23,941	38,680	62,621
1882	Cardiff	800	200	198	1215	Lord Tredegar	17,171	31,241	48,412
1883	Bridgwater	800	78	..	878	Lord Brooke, M.P.	13,501	31,053	44,554
1884	Maidstone	800	310	33	1218	Viscount Holmesdale	..	..	..

## ANNUAL EXHIBITIONS—continued.

Year.	Place Visited.	Local Subscription.	Prizes.			Total Local Contribution.	President.	Admissions.			
			Local Committee.	Local Societies.	Local Residents.			On 5/- Day.	On 2/6 Days.	On 1/- Days.	Total.
		£	£.	£	£	£					
1885	Brighton	800	227	33	82	1142	Viscount Hampden	..	9,637	39,851	49,488
1886	Bristol	800	525	..	..	1325	Lord Carlingford	..	29,580	70,999	100,579
1887	Dorchester	800	..	112	..	912	Earl of Ilchester	..	8,860	29,846	38,706
1888	Newport (Mon.)	800	100	..	..	900	Lord Tredegar	..	14,878	38,567	53,445
1889	Exeter	800	..	..	10	810	Lord Clinton	..	16,405	36,195	52,600
1890	Rochester	800	254	..	26	1120	Earl of Darnley	..	3,480	48,314	51,794
1891	Rath	800	50	103	100	1053	Earl Temple	..	23,510	52,185	75,695
1892	Swansea	800	200	100	10	1110	Sir J. D. T. Llewelyn, Bart.	..	18,364	54,609	72,973
1893	Gloucester	800	400	..	..	1200	Lord Fitzhardinge	..	14,272	40,368	54,640
1894	Guildford	800	174	..	10	934	Earl of Onslow	..	8,671	29,813	38,484
1895	Taunton	800	85	160	10	1035	Viscount Portman	..	13,181	30,111	43,292
1896	St. Albans	800	152	..	..	952	Earl of Clarendon	..	12,056	22,380	34,436
1897	Southampton	800	50	..	..	850	Lord Montagu of Beaulieu	..	8,284	33,750	42,034
1898	Cardiff	800	200	..	..	1000	Lord Windsor	..	13,101	42,501	55,602
1899	Exeter	800	..	225	5	1030	Lord Clinton	..	16,091	39,832	55,923
1900	Bath	800	100	150	10	1060	Marquis of Bath	954	11,601	36,814	49,369
1901	Croydon	800	115	..	..	915	(H.R.H. The Duke of Cornwall and York, K.G.)	1,196	9,362	30,693	41,251
1902	Plymouth	800	105	100	36	1041	Earl of Morley	842	12,629	40,565	54,036
1903	Bristol	800	434	50	61	1345	Duke of Beaufort	..	34,528	74,352	108,880
1904	Swansea	800	350	..	..	1150	Lord Windsor	..	28,265	50,562	78,827
1905	Nottingham	800	..	218	..	1018	Duke of Portland, K.G.	..	8,913	45,964	54,877
1906	Swindon	800	..	200	50	1050	Earl of Radnor	..	7,838	42,013	49,851
1906	Newport (Mon.)	800	201	51	29	1081	H.R.H. The Prince of Wales, K.G.	..	16,236	37,819	54,055
1908	Dorchester	800	100	25	..	925	Lord Digby	..	12,227	20,350	32,577
1909	Exeter	800	..	100	..	900	Lord Clinton	..	14,898	41,891	56,789
1910	Rochester and Chatham	800	117	..	..	917	Earl of Darnley	..	5,892	20,105	25,997
1911	Cardiff	800	195	110	10	1115	Marquis of Bute	..	16,213	40,588	56,801
1912	Bath	800	100	100	..	1000	Marquis of Bath	..	13,843	40,935	54,788
1913	Truro	800	35	115	39	918	Viscount Falmouth	..	..	..	..

## Members' Privileges.

### ANALYSES OF FERTILISERS, FEEDING STUFFS, WATERS, SOILS, &c.

*(Applicable only to the case of Persons who are not commercially engaged in the manufacture or sale of any substance sent for Analysis).*

**Members of the Bath and West and Southern Counties Society, who may also be Members of other Agricultural Societies, are particularly requested, in applying for Analyses, to state that they do so as Members of the first-named Society.**

THE following are the rates of Charges for Chemical Analyses to Members of the Society.

These privileges are applicable only when the analyses are for *bona-fide* agricultural purposes, and are required by Members of the Society for their own use and guidance in respect of farms or land in their own occupation and within the United Kingdom.

The analyses are given on the understanding that they are required for the individual and sole benefit of the Member applying for them, and must not be used for other persons, or for commercial purposes.

Land or estate agents, bailiffs, and others, when forwarding samples are required to state the names of those Members on whose behalf they apply.

Members are also allowed to send for analysis under these privileges any manures or feeding-stuffs to be used by their outgoing tenants, or which are to be given free of cost to their occupying tenants.

The analyses and reports may not be communicated to either vendor or manufacturer, except in cases of dispute.

Members are requested, when applying for an analysis, to quote the number in the subjoined schedule under which they wish it to be made.

No.		
1.	—An opinion of the purity of bone-dust or oil cake (each sample) .. ..	2s. 6d.
2.	—An analysis of sulphate or muriate of ammonia, or of nitrate of soda, together with an opinion as to whether it be worth the price charged .. ..	5s.
3.	—An analysis of guano, showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts and ammonia, together with an opinion as to whether it be worth the price charged .. ..	10s.
4.	—An analysis of mineral superphosphate of lime for soluble phosphates only, together with an opinion as to whether it be worth the price charged .. ..	5s.
5.	—An analysis of superphosphate of lime, dissolved bones, &c., showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime, and ammonia, together with an opinion as to whether it be worth the price charged .. ..	10s.
6.	—An analysis of bone-dust, basic slag, or any other ordinary artificial manure, together with an opinion as to whether it be worth the price charged .. ..	10s.
7.	—An analysis of compound artificial manures, animal products, refuse substances used for manure, &c. .. .. from 10s. to £1	
8.	—An analysis of limestone, showing the proportion of lime .. ..	7s. 6d.
9.	—An analysis of limestone, showing the proportion of lime and magnesia .. ..	10s.
10.	—An analysis of limestone or marls, showing the proportion of carbonate, phosphate, and sulphate of lime and magnesia, with sand and clay .. ..	10s.
11.	—Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime .. ..	£1
12.	—Complete analysis of a soil .. ..	£3
13.	—An analysis of oil-cake or other substance used for feeding purposes, showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre as well as of starch, gum, and sugar in the aggregate; and an opinion of its feeding and fattening or milk-producing properties .. ..	10s.
14.	—Analysis of any vegetable product .. ..	10s.
15.	—Determination of the "hardness" of a sample of water before and after boiling .. ..	5s.
16.	—Analysis of water of land-drainage, and of water used for irrigation .. ..	£1
17.	—Analysis of water used for domestic purposes .. ..	£1 10s.
18.	—An analysis of milk (to assist Members in the management of their Dairies and Herds, <i>bona-fide</i> for their own information and not for trade purposes, nor for use in connection with the Sale of Food and Drugs Acts) .. ..	5s.
19.	—Personal consultation with the Consulting Chemist. (To prevent disappointment it is suggested that Members desiring to hold a consultation with the Consulting Chemist should write to make an appointment) .. ..	5s.
20.	—Consultation by letter .. ..	5s.
21.	—Consultation necessitating the writing of three or more letters .. ..	10s.

Members wishing to exercise their privileges on the above-named terms, should forward their samples for examination *by post or parcel prepaid*, to the Consulting Chemist, Dr. JOHN AUGUSTUS VOELCKER, M.A., F.I.C., 22, Tudor Street, New Bridge Street, London, E.C.

The fees for analysis must be sent to the Consulting Chemist at the time of application.

## GUIDE TO PURCHASERS OF FERTILISERS AND FEEDING STUFFS.

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Purchasers are recommended in every case to insist upon having an *Invoice* given to them. This invoice should set out clearly :—

**In the case of Fertilisers—**

- (1.) the name of the fertiliser ;
- (2.) whether the fertiliser be artificially compounded or not ;
- (3.) the analysis guaranteed in respect of the principal fertilising ingredients.

**In the case of Feeding-Stuffs—**

- (1.) the name of the article ;
- (2.) the description of the article ; whether it has been made from one substance or seed only, or from more than one.
- (3.) the analysis guaranteed in respect of Oil and Albuminoids.

(NOTE.—The use of the terms “ Linseed-cake,” “ Cotton-cake,” &c., implies that these cakes shall be “ pure,” and purchasers are recommended to insist upon these terms being used without any qualification such as “ 95 per cent.,” “ as imported,” &c. “ Oil-cake ” should be avoided.

Members of the Society should see that the *Invoices* agree accurately with the orders given by them, and, in giving these orders, they should stipulate that the goods come up to the guarantees set out in the following list, and that they be sold subject to the analysis and report of the Consulting Chemist of the Bath and West and Southern Counties Society.

### FERTILISERS.

**Raw Bones, Bone-meal, or Bone-dust** to be guaranteed “ PURE,” and to contain not less than 45 per cent. of Phosphate of Lime, and not less than 4 per cent. of Ammonia.

**Steamed or “ Degelatinised ” Bones** to be guaranteed “ PURE,” and to contain not less than 55 per cent. of Phosphate of Lime, and not less than 1 per cent. of Ammonia.

**Mineral Superphosphate of Lime** to be guaranteed to contain a certain percentage of “ Soluble Phosphate.” [From 25 to 28 per cent. of Soluble Phosphate is an ordinarily good quality.]

**Dissolved Bones** to be guaranteed to be “ made from raw bone and acid only,” and to be sold as containing stated percentages of Soluble Phosphate, Insoluble Phosphates, and Ammonia.

**Compound Artificial Manures, Bone Manures, Bone Compounds, &c.,** to be sold by analysis stating the percentages of Soluble Phosphate, Insoluble Phosphates, and Ammonia contained.

**Basic Slag** to be guaranteed to contain a certain percentage of Phosphoric Acid, and to be sufficiently finely ground that 80 to 90 per cent. passes through a sieve having 10,000 meshes to the square inch.

**Peruvian Guano** to be described by that name, and to be sold by analysis stating the percentages of Phosphates and Ammonia.

**Sulphate of Ammonia** to be guaranteed to be “ PURE,” and to contain not less than 24 per cent. of Ammonia.

**Nitrate of Soda** to be guaranteed to be “ PURE,” and to contain 95 per cent. of Nitrate of Soda.

**Kainit** to be guaranteed to contain 23 per cent. of Sulphate of Potash.

All fertilisers to be delivered in good and suitable condition for sowing.

### FEEDING-STUFFS.

**Linseed Cake, Cotton Cake** (Decorticated and Undecorticated), and **Rape Cake** (for feeding purposes) to be pure, i.e., prepared *only* from one kind of seed from which their name is derived, and to be in sound condition. The report of the Consulting Chemist of the Bath and West and Southern Counties Society to be conclusive as to the "purity" or otherwise of any feeding-stuffs. The percentages of Oil and Albuminoids must also be guaranteed.

**Mixed Feeding Cakes, Meals, &c.**, to be sold on a guaranteed analysis.

All Feeding-Stuffs to be sold in sound condition, and to contain nothing of an injurious nature or worthless for feeding purposes.

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## INSTRUCTIONS FOR SELECTING AND SENDING SAMPLES FOR ANALYSIS.

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### GENERAL RULES.

1.—A sample taken for analysis should be fairly *representative of the bulk* from which it has been drawn.

2.—The sample should reach the Analyst *in the same condition* as it was at the time when drawn.

### FERTILISERS.

When **Fertilisers** are delivered in bags, select four or five of these from the bulk, and either turn them out on a floor and rapidly mix their contents, or else drive a shovel into each bag and draw out from as near the centre as possible a couple of shovelfuls of the manure, and mix these quickly on a floor.

Halve the heap obtained in either of these ways, take one-half (rejecting the other) and mix again rapidly, flattening down with the shovel any lumps that appear. Repeat this operation until at last only some three or four pounds are left.

From this fill three tins, holding from  $\frac{1}{2}$  lb. to 1 lb. each, mark, fasten up and seal each of these. Send one for analysis, and retain the others for reference.

Or,—the manure may be put into glass bottles provided with well-fitting corks; the bottles should be labelled and the corks sealed down. The sample sent for analysis can be packed in a wooden box and sent by post or rail.

When manures are delivered in bulk, portions should be successively drawn from *different parts* of the bulk, the heap being turned over now and again. The portions drawn should be thoroughly mixed, sub-divided, and, finally, samples should be taken as before, except that when the manure is coarse and bulky it is advisable to send larger samples than when it is in a finely-divided condition.

### FEEDING-STUFFS.

**Linseed, Cotton, and other Feeding Cakes.**—If a single cake be taken three strips should be broken off right across the cake and from the middle portion of it, one piece to be sent for analysis, and the other two retained for reference. Each of the three pieces should be marked, wrapped in paper, fastened up and sealed. The piece forwarded for analysis can be sent by post or rail.

A more satisfactory plan is to select four to six cakes from different parts of the delivery, then break off a piece about four inches wide from the middle of each cake, and pass these pieces through a cake-breaker. The broken cake should then be well mixed, and three samples of about 1 lb. each should be taken and put in tins or bags duly marked, fastened, and sealed as before. One of these lots

should be sent for analysis, the remaining two being kept for reference. It is advisable, also, with the broken pieces, to send a small strip from an unbroken cake.

**Feeding Meals, Grain, &c.**—Handfuls should be drawn from the centre of half-a-dozen different bags of the delivery; these lots should then be well mixed, and three  $\frac{1}{2}$  lb. tins or bags filled from the heap, each being marked, fastened up, and sealed. One sample is to be forwarded for analysis and the others retained for reference.

## SOILS, WATERS, &c.

**Soils.**—Have a wooden box made, 6 inches in length and width, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil and its subsoil 9 to 12 inches deep; trim this block to make it fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box and lift it up gently, turn over the box, nail on the lid, and send by rail. The soil will then be received in the position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil and forced down by pressure, and then dug out.

**Waters.**—Samples of water are best sent in glass-stoppered Winchester bottles holding half a gallon. One such bottle is sufficient for a single sample. Care should be taken to have these scrupulously clean. In taking a sample of water for analysis it is advisable to reject the first portion drawn or pumped, so as to obtain a sample of the water when in ordinary flow. The bottle should be rinsed out with the water that is to be analysed, and it should be filled nearly to the top. The stopper should be secured with string, or be tied over with linen or soft leather. The sample can then be sent carefully packed either in a wooden box with sawdust, &c., or in a hamper with straw.

**Milk.**—A pint bottle should be sent in a wooden box.

## GENERAL INSTRUCTIONS.

**Time for Taking Samples.**—All samples, both of fertilisers and feeding-stuffs, should be taken as soon after their delivery as possible, and should reach the Analyst within *ten days* after delivery of the article. In every case it is advisable that the Analyst's certificate be received before a fertiliser is sown or a feeding-stuff is given to stock.

**Procedure in the event of the Vendor wishing Fresh Samples to be Drawn.**—Should a purchaser find that the Analyst's certificate shows a fertiliser or feeding-stuff not to come up to the guarantee given him, he may inform the vendor of the result and complain accordingly. He should then send to the vendor *one* of the two samples which he has kept for reference. If, however, the vendor should demand that a fresh sample be drawn, the purchaser must allow this, and also give the vendor an opportunity of being present, either in person or through a representative whom he may appoint. In that case, three samples should be taken in the presence of both parties with the same precautions as before described, *each* of which should be duly packed up, labelled and *sealed* by both parties. One of these is to be given to the vendor, one is to be sent to the Analyst, and the third is to be kept by the purchaser for reference or future analysis if necessary.

All samples intended for the Consulting Chemist of the Society should be addressed (postage or carriage prepaid) to Dr. J. AUGUSTUS VOELCKER, M.A., F.I.C., Stuart House, 1, Tudor Street, New Bridge Street, London, E.C. Separate letters of instruction should be sent at the same time.



# TRURO MEETING,

## MAY 27, 28, 29, 30 and 31, 1913.

### LIST OF JUDGES.

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#### HORSES.

*Shire*.—F. W. GRIFFIN, Boro' Fen, Peterborough.  
*Hunters*.—HON. C. B. PORTMAN, Goldicote, Stratford-on-Avon.  
*Hackneys*.—A. BELDAM, River View, Earith, St. Ives, Hunts.  
*Ponies*.—LORD A. CECIL, The Mount, Lymington, Hants.  
*Harness*.—A. BELDAM, River View, Earith, St. Ives, Hunts.  
*Jumping*.—I. DE C. TREFFRY, Penarwyn, Par Station, Cornwall.

#### CATTLE.

*Devon*.—A. TRIBLE, Halsdon, Holsworthy, N. Devon.  
*South Devon*.—J. WOOD, Bourton, Totnes.  
*Shorthorn*.—B. READ, Church Farm, Cam., Glos.  
*Hereford*.—D. EDWARDS, Edgecombe, Swainshill, Hereford.  
*Sussex*.—A. STANFORD, Old Lock, Partridge Green, Sussex.  
*Aberdeen-Angus*.—C. W. SCHROETER, Tedfol 1, Billingshurst, Sussex.  
*Jersey Bulls*.—C. W. JOURNEAUX, Devon Villa, St. Martin, Jersey.  
*Jersey Cows and Heifers*.—J. H. SHORE, Whatley, near Frome.  
*Guernsey*.—G. T. BARHAM, Sudbury Park, Middlesex.  
*Kerry and Dexter*.—F. N. WEBB, Babraham, Cambridge.  
*Butter Tests*.—A. F. SOMERVILLE, Dinder House, Wells, Somerset.

#### SHEEP.

*Devon Longwooled*.—E. R. BERRY TORR, Instow, R.S.O., N. Devon.  
*South Devon*.—W. H. PAIN, High House, Kingsbridge.  
*Kent or Romney Marsh*.—F. A. BENSTED, The Lawn, Sittingbourne, Kent.  
*Southdown*.—W. S. MACWILLIAM, The Royal Farms, Windsor.  
*Hampshire Down*.—J. PAIN, Borough, Micheldever, Hampshire.  
*Oxford Down*.—J. M. EADY, Lancefield, Thorpe Malsor, Kettering, Northants.  
*Dorset Down*.—W. W. LOVEBLACE, Piddlehinton, near Dorchester.  
*Dorset Horn*.—C. B. STIBY, Gresford, Herringstone Road, Dorchester.  
*Exmoor Horn*.—T. W. SMITH, Ford, Eastdown, Barnstaple.  
*Dartmoor*.—W. C. DAWE, Week, Milton Abbot, Tavistock.

#### PIGS.

*Berkshire*.—W. A. BARNES, Haslucks Green Farm, Shirley, Birmingham.  
*Large Black*.—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall.  
*Large and Middle White and Tamworth*.—S. HEATON, Worsley, Manchester.  
*Any Breed*.—J. M. HARRIS, Chilvester Lodge, Calne, Wilts.

#### POULTRY.

G. DOBLE, Bridgwater; and W. H. SILVESTER, The Hawthorns, Hillsborough Park, Sheffield.

#### PRODUCE.

*Cider*.—J. H. HILL, Newtake, Staverton, Totnes, Devon.  
*Cheese*.—E. HILL, Evercreech, S.O., Somerset.  
*Cream Cheese, Butter and Cream*.—PROF. T. CARROLL, 1, Rostrevor Terrace, Rathgar, Dublin.

#### COMPETITIONS.

*Butter-Making*.—PROF. T. CARROLL, 1, Rostrevor Terrace, Rathgar, Dublin; and B. READ, Church Farm, Cam, Dursley, Glos.  
*Milking*.—S. Hoddinott, Worminster, Shepton Mallet.  
*Shoeing*.—F. BAZLEY, M.R.C.V.S., 5, Estcourt Street, Devizes, Wilts.

#### FORESTRY.

G. MARSHALL, Estate Office, Godalming.

MONEY PRIZES.						PAGE
HORSES	..	..	£903	0	0	ovii
DONKEYS	..	..	6	10	0	cx i
CATTLE	..	..	1,178	0	0	cxiii
SHEEP ..	..	..	570	0	0	cxviii
PIGS ..	..	..	222	0	0	cxxi
CIDER ..	..	..	30	0	0	cxiii
CHEESE	..	..	78	0	0	cxix
CREAM CHEESE, BUTTER AND CREAM	..	..	79	0	0	cxviii
BUTTER-MAKING	..	..	54	7	6	cxix
MILKING	..	..	17	7	0	cxv
SHOEING	..	..	38	10	0	cxv
POULTRY	..	..	163	10	0	cxv
<hr/>						
£3,340 4 6						

## DONORS OF MONEY PRIZES.

Bath and West and Southern Counties Society	..	£2,791	15	0
Cornwall Local Committee	..	35	0	0
Royal Cornwall Agricultural Association	..	115	0	0
Cornwall County Council	..	31	7	6
Shire Horse Society (or Medal)	..	15	0	0
The President (Viscount Falmouth)	..	25	0	0
Viscount Tredegar	..	12	0	0
G. H. Johnstone, Esq.	..	5	0	0
E. Hain, Esq.	..	3	0	0
Devon Cattle Breeders' Society	..	10	0	0
South Devon Herd Book Society	..	17	0	0
Shorthorn Society	..	30	0	0
Dairy Shorthorn (Coates's Herd Book) Association	..	10	0	0
Hereford Herd Book Society	..	20	0	0
English Aberdeen-Angus Cattle Association	..	10	0	0
English Jersey Cattle Society (or Medal)	..	20	0	0
English Guernsey Cattle Society	..	28	0	0
English Kerry and Dexter Cattle Society	..	15	0	0
Devon Longwooled Sheep Breeders' Society	..	10	0	0
South Devon Flock Book Association	..	20	0	0
Kent or Romney Marsh Sheep Breeders' Association	..	17	0	0
Southdown Sheep Society	..	17	0	0
Hampshire Down Sheep Breeders' Association	..	10	0	0
Oxford Down Sheep Breeders' Association	..	10	0	0
Dorset Horn Sheep Breeders' Association	..	15	0	0
Dorset Down Sheep Breeders' Association	..	15	0	0
Exmoor Horn Sheep Breeders' Association	..	10	0	0
British Berkshire Society	..	5	0	0
Large Black Pig Society	..	12	0	0
Hon. J. R. de C. Boscawen	..	3	2	0
Hon. T. C. Agar Robartes, M.P.	..	1	0	0
Sir G. Croydon Marks, M.P.	..	1	0	0
General Sir R. Pole Carew, M.P.	..	1	0	0

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£3,340 4 6

**DONORS OF MEDALS, PLATE, &c.**

H.R.H. the Prince of Wales, K.G.  
 Proprietors of "West Briton and Cornwall Advertiser."  
 Shire Horse Society.  
 Hunters' Improvement and National Light Horse  
 Breeding Society.  
 Hackney Horse Society.  
 Polo and Riding Pony Society.  
 Chas. A. Hanson, Esq.  
 Sussex Herd Book Society.  
 Aberdeen Angus Cattle Society.  
 English Aberdeen Angus Cattle Association.  
 English Jersey Cattle Society.  
 B. de Bertodano, Esq.  
 English Kerry and Dexter Cattle Society.  
 Southdown Sheep Society.  
 Chas. and Thos. Harris & Co. (Ld.)  
 Poultry Club.  
 Bath and West Society.

**PRIZES**

	First Prize.	Second Prize.	Thrd Prize
	£	£	£
<i>An Animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of those Prizes headed as Champion or Special Prizes, or in Class 73. In the case of Special Prizes offered under conditions, only those Animals which are stated on the Entry Forms to be eligible, will be allowed to compete.</i>			

**HORSES.**

Exhibitors are requested to note that Animals entered in Classes 1 to 8 must be in the Yard before 8 a.m. on Tuesday, May 27th, and (except the Stallions in Classes 1 and 2 which can be removed after the Parade of Horses on the third day of the Show) must remain in the Yard till 6 o'clock on Saturday, May 31st.

**SHIRE.**

(Registered or eligible for registration in the Shire Horse Society's Stud Book.)

CLASS								
1.—STALLION, foaled before 1911	.	.	.	.	.	15	10	3
2.—STALLION, foaled in 1911	.	.	.	.	.	15	10	3
3.—COLT, foaled in 1912	.	.	.	.	.	15	10	3
4.—MARE in-Foal, or with foal at foot	.	.	.	.	.	15	10	3
5.—FILLY or GELDING, foaled in 1912	.	.	.	.	.	10	5	3
6.—FILLY or GELDING, foaled in 1911	.	.	.	.	.	10	5	3
7.—FILLY or GELDING, foaled in 1910	.	.	.	.	.	10	5	3

	First Prize.	Second Prize.	Third Prize.
<b>HORSES—continued.</b>	£	£	£
<b>SPECIAL PRIZES.</b>			
(Offered by the Shire Horse Society.)			
A.—A Gold Medal, or the sum of £10, for Best MARE or Filly in the Shire Horse Classes, under Condition 48, and to the Breeder of the Winner under the Conditions stated, a prize of . . . . .	10 5		
(Offered by the Royal Cornwall Agricultural Association.)			
B.—*BEST EXHIBIT in Class 1, 2 or 3, the property of a resident in Cornwall . . . . .	5		1
C.—*BEST EXHIBIT in Class 4, ditto . . . . .	6		
D.—*BEST EXHIBIT in Class 6 or 7, ditto . . . . .	5		
<b>ANY AGRICULTURAL BREED.</b>			
*8.—MARE or GELDING, foaled in 1908 or 1909, the property of a resident in Cornwall . . . . .	5		
<b>HUNTERS.</b>			
Animals entered in Classes 9 to 17 must be in the Yard before 8 a.m. on Tuesday, May 27th, and must remain there till 4 p.m. on Thursday, May 29th, when they must be removed from the Yard.			
<b>CLASS</b>			
9.—MARE in-Foal, or with foal at foot . . . . .	15	10	3
10.—Filly, Colt or Gelding, foaled in 1912 . . . . .	10	5	3
11.—Filly or Gelding, foaled in 1911 . . . . .	10	5	3
12.—Filly or Gelding, foaled in 1910 . . . . .	10	5	3
13.—NOVICE CLASS, MARE or GELDING, foaled in 1909 . . . . .	10	5	3
14.—MARE or GELDING, foaled before 1910, to carry under 14 stone . . . . .	20	10	3
15.—MARE or GELDING, foaled before 1910, to carry 14 stone or over . . . . .	20	10	3
*16.—MARE or GELDING, not exceeding 6 years old, bred by and the property of a Cornish tenant farmer . . . . .	5	3	2
*17.—Thoroughbred STALLION, not having won a King's or Board Premium, the property of a resident in Cornwall . . . . .	5		
<b>SPECIAL PRIZES.</b>			
(Offered by the Hunters' Improvement and National Light Horse Breeding Society, under Conditions 49 and 50.)			
E.—A Gold Medal, or £5 and a Bronze Medal, for the best Hunter Brood Mare in Class 9, registered with a number in the Hunter Stud Book at the time of entry or within a month of the award, not having			
* The Prizes marked with an asterisk are offered by the Royal Cornwall Agricultural Association.			

HORSES—*continued.*

previously won the above-named Society's Gold Medal as a Brood Mare in 1913, and which must have her foal at foot, or produce a living foal in 1913 to a thoroughbred horse or Registered Hunter sire. In the first instance a certificate to that effect must be forwarded before the Medal is sent.

- F.—A Silver Medal or £1** (at the option of the winner), for the Best Hunter Mare or Gelding of any age, exhibited by a member of the Hunters' Improvement and National Light Horse Breeding Society, whose subscription to that Society must be paid within a month of the award.

Only Prize-winners in the Classes will be eligible for these Medals.

(Offered by the President, Viscount Falmouth).

- |  |    |  |  |
|--|----|--|--|
| <b>G.—BEST EXHIBIT</b> in Class 9, the property of a tenant farmer . . . . .           | 10 |  |  |
| <b>H.—BEST EXHIBIT</b> in Class 10, the property of a tenant farmer . . . . .          | 5  |  |  |
| <b>I.—BEST EXHIBIT</b> in Classes 11 and 12, the property of a tenant farmer . . . . . | 10 |  |  |

(Offered by the Royal Cornwall Agricultural Association).

- |  |   |  |  |
|--|---|--|--|
| <b>J.—*BEST EXHIBIT</b> in Class 9, the property of a resident in Cornwall . . . . .   | 6 |  |  |
| <b>K.—*BEST EXHIBIT</b> in Class 14 or 15, bred by and the property of a resident in Cornwall, not exceeding 6 years old . . . . . | 5 |  |  |

(Offered by the Proprietors of the "West Briton and Cornwall Advertiser.")

- L.—BEST HUNTER** in Classes 9 to 17, Plate value £10.

## HACKNEYS.

(Registered or eligible for registration in the Hackney Horse Society's Stud Book.)

Animals entered in Classes 18 to 21 must be brought into the Yard after 6 p.m. on Thursday, May 29th and before 8 a.m. on Friday, May 30th, and must remain in the Yard until 6 p.m. on Saturday, May 31st.

## CLASS

- |   |    |   |   |
|---|----|---|---|
| <b>18.—MARE</b> in-Foal, or with foal at foot . . . . .       | 10 | 5 | 3 |
| <b>19.—FILLY, COLT OR GELDING</b> , foaled in 1912 . . . . .  | 10 | 5 | 3 |
| <b>20.—FILLY OR GELDING</b> , foaled in 1911 . . . . .        | 10 | 5 | 3 |
| <b>21.—MARE OR GELDING</b> , foaled in 1909 or 1910 . . . . . | 10 | 5 | 3 |

\* The Prizes marked with an asterisk are offered by the Royal Cornwall Agricultural Association.

**HORSES—continued.**

**SPECIAL PRIZE.**

(Offered by the Hackney Horse Society.)

**M.—A Silver Medal for the Best Mare or Filly exhibited in Classes 18 to 21, under Condition 51.**

**PONIES.**

Animals entered in Classes 22 to 25 must be brought into the Yard after 6 p.m. on Thursday, May 29th, and before 8 a.m. on Friday, May 30th, and must remain in the Yard until 6 p.m. on Saturday, May 31st.

(Of the Prizes offered in Classes 22 to 25, £12 is contributed by Viscount Tredegar.)

CLASS	First Prize.	Second Prize.	Thrd Prize
	£	£	£
22.—STALLION, not exceeding 15 hands, suitable to get Polo or Riding Ponies . . . . .	6	4	2
23.—MARE, not exceeding 14.2 hands, suitable to breed Polo or Riding Ponies, in-foal, or with foal at foot	6	4	2
24.—FILLY, COLT or GELDING, foaled in 1911, not exceeding 14.1 hands . . . . .	6	4	2
25.—FILLY, COLT or GELDING, foaled in 1910, not exceeding 14.1½ hands . . . . .	6	4	2

**SPECIAL PRIZES.**

(Offered by the Polo and Riding Pony Society.)

**N.—A Silver Medal for the best Polo Pony Brood Mare in the Brood Mare Class, registered or eligible for registration in the Stud Book.**

**O.—A Silver Medal for the best Polo Pony Stallion, registered or eligible for registration in the Stud Book ; or best Polo Pony Entire Colt, one, two or three years old, entered or eligible for the Supplement, viz., by a Registered or Entered Sire or out of a Registered or Entered Dam.**

**P.—A Bronze Medal for the best Foal, entered or eligible for the Supplement, viz., by a Registered or Entered Sire, or out of a Registered or Entered Dam.**

(These Medals are offered subject to Condition No. 53.)

**HARNESS.**

**ENTRIES CLOSE** { With boxes—April 3, or at double fees April 10.  
Without Boxes—May 8.

Horses entered in other Classes can, if eligible, be also entered on payment of an additional fee, in the Harness Classes.

Horses entered in the Double Harness and Tandem Classes can also be entered on payment of an additional fee, in the Single Harness Classes.

	First Prize.	Second Prize.	Third Prize
	£	£	£
<b>HORSES—continued.</b>			
Horses entered in the Harness Classes only and not having a box in the Yard, must be in the Show Yard by 2 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as the class has been judged.			
<b>CLASS</b>			
26.— <b>MARE or GELDING</b> , not over 14.2 hands, to be driven in harness on the 1st day of the Show . . . . .	10	5	2
27.— <b>TANDEMS</b> (Mares or Geldings), to be driven in harness on the 1st day of the Show . . . . .	10	5	2
28.— <b>MARE or GELDING</b> , 15 hands or over, to be driven in harness on the 2nd day of the Show . . . . .	10	5	2
29.— <b>PAIR OF CARRIAGE HORSES</b> (Mares or Geldings), to be driven in double harness on the 2nd day of the Show . . . . .	10	5	2
30.— <b>MARE or GELDING</b> , over 14.2 and under 15 hands, to be driven in harness on the 3rd day of the Show . . . . .	10	5	2
31.— <b>TROTTING. Best MARE, STALLION, or GELDING</b> under 15 hands, for speed and action, to be driven in harness on the 3rd day of the Show . . . . .	10	5	2
(The Prizes in Classes 32 and 33 are offered by the Cornwall Local Committee.)			
32.— <b>MARE or GELDING</b> , over 14 hands, the property of a resident in Cornwall, and that has been such for not less than three months prior to the date of the Show. To be driven in harness on the 4th day of the Show . . . . .	5	2 10	
33.— <b>DRAY or CART MARE or GELDING</b> , suitable for and having been worked by a Cornwall Brewer, Builder, Timber Merchant, Railway Company, Haulier, Tradesman, or Corporation, for not less than three months immediately prior to the date of the Show. To be exhibited with gear on the 4th day of the Show . . . . .	5	2 10	
(The Prize in Class 34 is offered by the Royal Cornwall Agricultural Association.)			
34.— <b>MARE or GELDING</b> , not exceeding six years old, the property of a resident in Cornwall, to be driven in harness on the 4th day of the Show . . . . .	5		
35.— <b>DONKEYS</b> , to be driven in harness on the 4th day of the Show . . . . .	3	2	1
36.— <b>MARE or GELDING</b> , not over 13.2 hands, to be driven in harness on the 5th day of the Show . . . . .	10	5	2
37.— <b>TROTTING. Best MARE, STALLION, or GELDING</b> , 15 hands or over, for speed and action, to be driven in harness on the 5th day of the Show . . . . .	10	5	2

HORSES—*continued.*

## SPECIAL PRIZES.

(Offered by the Hackney Horse Society.)

- Q.—A Silver Medal for the best Mare or Gelding exhibited in Single Harness in Classes 26 to 37, subject to Conditions 52.**

## JUMPING.

(For Regulations as to Jumping Classes see Condition 54.)

ENTRIES CLOSE { With Boxes—April 3, or at double fees April 10.  
Without Boxes—May 8.

Horses can be entered in as many Jumping Classes as they are eligible for on payment of the entry for each Class, and can take second or third prize in each Class, but only one first prize in Classes 38 to 43, and 45 to 48.

Horses entered in the Jumping Classes only, and not having a box in the Yard, must be in the Show Yard by 2 p.m. on the day on which they compete and, with the consent of the Stewards, may leave the Yard as soon as the Class has been judged.

## CLASS

	First Prize.	Second Prize.	Third Prize.
38.—MARE or GELDING, 15 hands and over, that shall jump over the course in the best form on the 1st day of the Show . . . . .	10	5	2
39.—MARE or GELDING, under 15 hands, ditto, ditto . . . . .	10	5	2
40.—MARE or GELDING, 15.3 hands and over, that shall jump over the course in the best form on the 2nd day of the Show . . . . .	10	5	2
41.—MARE or GELDING, under 15.3 hands, ditto, ditto . . . . .	10	5	2
42.—MARE or GELDING, 15 hands and over, that shall jump over the course in the best form on the 3rd day of the Show . . . . .	10	5	2
43.—MARE or GELDING, under 15 hands, ditto, ditto . . . . .	10	5	2
(The First Prize in Class 44 is offered by G. H. Johnstone, Esq., and the Second Prize by E. Hain, Esq.)			
44.—MARE or GELDING, entered and ridden by an Officer, Non-Commissioned Officer, or Trooper of the Royal 1st Devon Yeomanry, in Uniform, that shall, if required by the Judges, jump over the course in the best form on the 3rd day of the Show . . . . .	5	3	
45.—MARE or GELDING, that shall jump over the course in the best form on the 4th day of the Show . . . . .	10	5	2
(The First Prize in Class 46 is offered by the Cornwall Local Committee.)			
46.—MARE or GELDING, the property of a resident in Cornwall, ditto, ditto . . . . .	10	5	2
47.—MARE or GELDING, that shall jump highest on the 5th day of the Show . . . . .	10	5	2



	First Prize.	Second Prize.	Thrd Prize
<b>HORSES—continued.</b>	£	£	£
(The First Prize in Class 48 is offered by the Cornwall Local Committee.)			
<b>CLASS</b>			
<b>48.—MARE or GELDING, the property of a resident in Cornwall, ditto, ditto</b>	10	5	2
<b>CHAMPION CLASS.</b>			
<b>49.—MARE or GELDING, any height, having won a Prize in Classes 38 to 48, that shall jump over the course in the best form on the 5th day of the Show</b>	20		
(In this Class the whole of the Jumps will be raised at the discretion of the Stewards).			
The Entry Fee will be returned in the case of Horses entered in Class 49, but afterwards found to be ineligible.			

## CATTLE.

### DEVON.

(£10 towards the Prizes in Classes 50 to 56 is contributed by the Devon Cattle Breeders' Society.)

50.—COW, in-Milk, calved before 1910	10	5	2
51.—HEIFER, in-Milk, calved in 1910	10	5	2
52.—HEIFER, calved in 1911	10	5	2
53.—HEIFER, calved in 1912	10	5	2
54.—BULL, calved in 1909 or 1910	10	5	2
55.—BULL, calved in 1911	10	5	2
56.—BULL, calved in 1912	10	5	2

### SPECIAL PRIZES.

(Offered by the Royal Cornwall Agricultural Association.)

<b>Best COW or HEIFER in Classes 50 to 53, the property of a resident in Cornwall</b>	3		
<b>Best BULL in Classes 54 to 56, the property of a resident in Cornwall</b>	5		

### SOUTH DEVON.

(The Prizes in Class 57 are offered by the South Devon Herd Book Society).

57.—COW in-Milk, calved before 1910	10	5	2
58.—HEIFER, in-Milk, calved in 1910	10	5	2
59.—HEIFER, calved in 1911	10	5	2
60.—HEIFER, calved in 1912	10	5	2
61.—BULL, calved in 1909 or 1910	10	5	2
62.—BULL, calved in 1911	10	5	2
63.—BULL, calved in 1912	10	5	2

				First Prize.	Second Prize.	Third Prize
CATTLE— <i>continued.</i>				£	£	£
<b>SPECIAL PRIZES.</b>						
(Offered by the Royal Cornwall Agricultural Association.)						
Best COW or HEIFER in Classes 57 to 60, the property of a resident in Cornwall . . . . .				3		
Best BULL in Classes 61 to 63, the property of a resident in Cornwall . . . . .				5		
(Offered by Charles A. Hanson, Esq., Fowey Hall, Cornwall, Alderman of the City of London.)						
A Challenge Cup for the best Cow in Milk, in the South Devon Classes, to be won three times in succession or four times altogether, before becoming the property of the winner.						
<b>SHORTHORN.</b>						
(The 1st Prize in Class 64 is offered by the Shorthorn Society, and the 1st Prize in Class 65 by the Dairy Shorthorn (Coates's Herd Book) Association.)						
<b>CLASS</b>						
64.—Pedigree Dairy Cow, in-Milk, four years old and upwards on May 27th, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize offered by the above-named Society or Association in 1913, to be milked in the ring before judging, under Conditions 63 .				10	5	
65.—Ditto under four years old ditto ditto .				10	5	
66.—Cow, in-Milk, calved before 1910 . . . . .				10	5	2
67.—HEIFER, in-Milk, calved in 1910 . . . . .				10	5	2
68.—HEIFER, calved in 1911 . . . . .				10	5	2
69.—HEIFER, calved in 1912 . . . . .				10	5	2
70.—BULL, calved in 1909 or 1910 . . . . .				10	5	2
71.—BULL, calved in 1911 . . . . .				10	5	2
72.—BULL, calved in 1912 . . . . .				10	5	2
The 1st Prize in Class 73 is offered by the Shorthorn Society, and the 2nd Prize by the Royal Cornwall Agricultural Association, under Conditions 64. There is no additional Entry Fee in this Class.						
73.—Best BULL entered in Class 72, the property of a resident in Cornwall or Devon . . . . .				10	5	
<b>SPECIAL PRIZES.</b>						
(Offered by the Royal Cornwall Agricultural Association.)						
Best COW or HEIFER in Classes 66 to 69, the property of a resident in Cornwall . . . . .				3		
Best Bull in Classes 70 to 72, the property of a resident in Cornwall . . . . .				5		

	First Prize.	Second Prize.	Thrd Prize
£	£	£	
<b>CATTLE—continued.</b>			
<b>CHAMPION PRIZE.</b>			
(Offered by the Shorthorn Society.)			
Best Bull in Classes 70, 71 or 72, entered in, or eligible for entry in, Coates's Herd Book . . . . .	10		
<b>HEREFORD.</b>			
CLASS			
74.—COW, in-Milk, calved before 1910 . . . . .	10	5	2
75.—HEIFER, in-Milk, calved in 1910 . . . . .	10	5	2
76.—HEIFER, calved in 1911 . . . . .	10	5	2
77.—HEIFER, calved in 1912 . . . . .	10	5	2
78.—BULL, calved in 1909 or 1910 . . . . .	10	5	2
79.—BULL, calved in 1911 . . . . .	10	5	2
80.—BULL, calved in 1912 . . . . .	10	5	2
<b>CHAMPION PRIZES.</b>			
(Offered by the Hereford Herd Book Society.)			
Best Cow or Heifer in Classes 74 to 77 . . . . .	10		
Best Bull in Classes 78 to 80 . . . . .	10		
<b>SUSSEX.</b>			
81.—COW or HEIFER, in-Milk, calved before 1911 . . . . .	10	5	2
82.—HEIFER, calved in 1911 . . . . .	10	5	2
83.—HEIFER, calved in 1912 . . . . .	10	5	2
84.—BULL, calved in 1909, 1910 or 1911 . . . . .	10	5	2
85.—BULL, calved in 1912 . . . . .	10	5	2
<b>SPECIAL PRIZES.</b>			
(Offered by the Sussex Herd Book Society.)			
A Silver Medal for the Best Cow or Heifer, in Class 81, 82 or 83.			
A Silver Medal for the Best Bull in Class 84 or 85.			
<b>ABERDEEN-ANGUS.</b>			
(The 1st Prize in Class 86 is offered by the English Aberdeen-Angus Cattle Association.)			
86.—COW or HEIFER, in-Milk, calved before 1st Dec., 1910 . . . . .	10	5	2
87.—HEIFER, calved on or after 1st Dec., 1910 . . . . .	10	5	2
88.—HEIFER, calved on or after 1st Dec., 1911 . . . . .	10	5	2
89.—BULL, calved before Dec. 1st, 1911 . . . . .	10	5	2
90.—BULL, calved on or after Dec. 1st, 1911 . . . . .	10	5	2
<b>CHAMPION PRIZES.</b>			
(Offered by the Aberdeen-Angus Cattle Society.)			
A Gold Medal, value £10, for the Best Animal in Classes 86 to 90.			
(Offered by the English Aberdeen-Angus-Cattle Association.)			
A Silver Medal for the Best Animal of opposite Sex to that awarded the Gold Medal in Classes 86 to 90.			

	First Prize.	Second Prize.	Thrd Prize
<b>CATTLE—continued.</b>	£	£	£
<b>JERSEY.</b>			
(The Prizes in Class 91 are offered by the English Jersey Cattle Society.)			
<b>CLASS</b>			
91.—Cow or Heifer, in-Milk, entered in or eligible for entry in the English Jersey Herd Book, bred by Exhibitor, and sired in Great Britain or Ireland . . . . .	5	3	2
92.—Cow, in-Milk, calved before 1910 . . . . .	10	5	2
93.—Cow or HEIFER, in-Milk, calved in 1910 . . . . .	10	5	2
94.—HEIFER, in-Milk, calved in or since 1911 . . . . .	10	5	2
95.—HEIFER, calved in 1912 . . . . .	10	5	2
96.—BULL, calved in 1909 or 1910 . . . . .	10	5	2
97.—BULL, calved in 1911 . . . . .	10	5	2
98.—BULL, calved in 1912 . . . . .	10	5	2
<b>SPECIAL PRIZES.</b>			
(Offered by the Royal Cornwall Agricultural Association.)			
Best COW or HEIFER in Classes 91 to 95, the property of a resident in Cornwall . . . . .	3		
Best BULL in Classes 96 to 98, the property of a resident in Cornwall . . . . .	5		
<b>GUERNSEY.</b>			
(£20 towards the Prizes in the Guernsey Classes is contributed by the English Guernsey Cattle Society.)			
99.—Cow, in-Milk, calved before 1910 . . . . .	10	5	2
100.—HEIFER, in-Milk, calved in 1910 . . . . .	10	5	2
101.—HEIFER, calved in 1911 . . . . .	10	5	2
102.—HEIFER, calved in 1912 . . . . .	10	5	2
103.—BULL, calved in 1909 or 1910 . . . . .	10	5	2
104.—BULL, calved in 1911 . . . . .	10	5	2
105.—BULL, calved in 1912 . . . . .	10	5	2
<b>SPECIAL PRIZES.</b>			
(Offered by the Royal Cornwall Agricultural Association.)			
Best COW or HEIFER in Classes 99 to 102, the property of a resident in Cornwall . . . . .	3		
Best BULL in Classes 103 to 105, the property of a resident in Cornwall . . . . .	5		
(Offered by the English Guernsey Cattle Association.)			
COW or HEIFER in the Guernsey Classes, entered in the English Guernsey Cattle Society's Herd Book, or eligible and tendered for entry therein, obtaining the greatest number of points by the practical test of the			

	First Prize.	Second Prize.	Thrd Prize
	£	£	£
<b>CATTLE—continued.</b>			
churn, the points to be reckoned on the weight of Butter and an allowance for lactation to be made under the scale settled by the English Guernsey Cattle Society . . . . .	5	3	
<b>KERRY.</b>			
<b>CLASS</b>			
106.—COW or HEIFER, in-Milk, calved in or before 1910 . . . . .	10	5	2
107.—HEIFER, calved in 1911 or 1912 . . . . .	10	5	2
108.—BULL, calved in 1910, 1911 or 1912 . . . . .	10	5	2
<b>SPECIAL PRIZES.</b>			
(Offered by B. de Bertodano, Esq.)			
For Best Animal in Classes 106, 107 or 108, to which the Cup has not previously been awarded.			
The Bertodano Challenge Cup, value 25 Guineas. The Cup to become the property of an Exhibitor winning it three years in succession.			
The English Kerry and Dexter Cattle Society will present a Silver Medal to the owner of the winning animal on each occasion the Cup is competed for.			
<b>DEXTER KERRY.</b>			
109.—COW or HEIFER, in-Milk, calved in or before 1910 . . . . .	10	5	2
110.—HEIFER, calved in 1911 or 1912 . . . . .	10	5	2
111.—BULL, calved in 1910, 1911 or 1912 . . . . .	10	5	2
(The Prizes in Class 112 are offered by the English Kerry and Dexter Cattle Society.)			
112.—Bull, calved in 1912, whose sire and dam are entered in the English Kerry and Dexter or Royal Dublin Society's Herd Book . . . . .	10	3	2
<b>SPECIAL PRIZE.</b>			
(Offered by the English Kerry and Dexter Cattle Society.)			
The Devonshire Challenge Cup, for the Best Animal in Classes 109 to 112, bred by Exhibitor, and entered in or eligible for the English Kerry and Dexter Herd Book. The Cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.			
The English Kerry and Dexter Cattle Society will present a Silver Medal to the owner of the winning animal on each occasion the Cup is competed for.			

	First Prize	Second Prize.	Thrd Prize
	£	£	£
<b>DAIRY.</b>			
(See Regulation 66.)			
<i>Animals entered in the Breed Classes can, if eligible, be entered also, on payment of the additional fee, in Classes 113 to 115.</i>			
<b>CLASS</b>			
113.—Cow, in-Milk, of any breed or cross, under 900 lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration . . .	10	5	2
114.—Cow, in-Milk, of any breed or cross, 900 lbs. live weight or over, ditto, ditto . . .	10	5	2
<b>BUTTER-TEST.</b>			
(See Regulation 66.)			
(The Prizes in Class 115 are offered by the English Jersey Cattle Society, and entries in them are subject to any conditions issued by that Society previous to the tests.)			
115.—Cow, eligible for or entered in the English Jersey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Jersey Cattle Society . . .	Gold Medal or 10	Silver Medal	Bronze Medal
Certificates of Merit will also be awarded to Cows under 5 years old obtaining 30 points, and to Cows 5 years old or over obtaining 35 points.			
<b>CHAMPION PRIZES.</b>			
(Offered by H.R.H. the Prince of Wales, K.G.)			
Best BULL exhibited in any of the Classes . . .	Silver	Cup va	1.£15
Best COW or HEIFER, exhibited in any of the Classes . . .	Silver	Cup va	1.£15
<b>SHEEP.</b>			
<b>DEVON LONGWOOLLED.</b>			
(£10 towards the Prizes in Classes 116 to 118 is contributed by the Devon Longwoolled Sheep Breeders' Society.)			
116.—Shearling RAM . . .	10	5	2
117.—Pair of RAM LAMBS, dropped in 1913 . . .	10	5	2
118.—Pen of three Shearling EWES . . .	10	5	2

**SHEEP—continued.**

**SOUTH DEVON.**

(The Prizes in Classes 119 and 123 are offered by the South Devon Flock Book Association.)

**CLASS**

	First Prize.	Second Prize.	Thrd Prize
	£	£	£
119.—Ram, Two Shear and upwards . . . . .	5	3	2
120.—Shearling RAM . . . . .	10	5	2
121.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
122.—Pen of Three Shearling EWES . . . . .	10	5	2
123.—Pen of Three Ewe Lambs, dropped in 1913 . . . . .	5	3	2

**KENT OR ROMNEY MARSH.**

(The Prizes in Class 124 are offered by the Kent or Romney Marsh Sheep Breeders' Association.)

124.—Two Shear Ram . . . . .	10	5	2
125.—Shearling RAM . . . . .	10	5	2
126.—Pen of three Shearling EWES . . . . .	10	5	2

**SOUTHDOWN.**

(The Prizes in Class 127 are offered by the Southdown Sheep Society.)

127.—Two Shear Ram . . . . .	10	5	2
128.—Shearling RAM . . . . .	10	5	2
129.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
130.—Pen of three Shearling EWES . . . . .	10	5	2

**SPECIAL PRIZE.**

(Offered by the Southdown Sheep Society, under Condition 69.)

Silver Medal or £1 for the Best Ram or Ram Lamb in Classes 127, 128, or 129.

**HAMPSHIRE DOWN.**

131.—Shearling RAM . . . . .	10	5	2
132.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
133.—Pen of three Shearling EWES . . . . .	10	5	2

(The Prizes in Class 134 are offered by the Hampshire Down Sheep Breeders' Association.)

134.—Pen of three Ewe Lambs, dropped in 1913 . . . . .	7	3	
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**OXFORD DOWN.**

135.—Shearling RAM . . . . .	10	5	2
136.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
137.—Pen of three Shearling EWES . . . . .	10	5	2

	First Prize.	Second Prize.	Thrd Prize
<b>SHEEP.—continued.</b>	£	£	£
(The Prizes in Class 138 are offered by the Oxford Down Sheep Breeders' Association, and will be withheld until the Animals awarded the prizes are registered in the Flock Book.)			
<b>CLASS</b>			
138.—Pair of Ewe Lambs, dropped in 1913 . . . . .	6	3	1
<b>SPECIAL PRIZES.</b>			
(Offered by the Royal Cornwall Agricultural Association.)			
Best Ram or Ram Lamb in Class 116, 117, 119, 120, 121, 135, or 136, the property of a resident in Cornwall . . . . .	4		
Best Pen of Ewes or Ewe Lambs in Class 118, 122, 123, 137 or 138, the property of a resident in Cornwall . . . . .	3		
<b>DORSET HORN.</b>			
139.—Shearling RAM . . . . .	10	5	2
140.—Pair of RAM LAMBS, dropped after Nov. 1, 1912 . . . . .	10	5	2
141.—Pen of three Shearling Ewes. . . . .	10	5	2
(The Prizes in Class 142 are offered by the Dorset Horn Sheep Breeders' Association.)			
142.—Pen of three Ewe Lambs, dropped after November 1st, 1912 . . . . .	10	3	2
<b>DORSET DOWN.</b>			
(The Prizes in Class 143 are offered by the Dorset Down Sheep Breeders' Association.)			
143.—Shearling Ram . . . . .	10	3	2
144.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
145.—Pen of three Shearling EWES . . . . .	10	5	2
<b>EXMOOR HORN.</b>			
(The Prizes in Class 146 are offered by the Exmoor Horn Sheep Breeders' Society.)			
146.—Old Ram, 2 Shear and upwards . . . . .	5	3	2
147.—Shearling RAM . . . . .	10	5	2
148.—Pen of three Shearling EWES . . . . .	10	5	2
<b>DARTMOOR.</b>			
149.—Shearling RAM . . . . .	10	5	2
150.—Pair of RAM LAMBS, dropped in 1913 . . . . .	10	5	2
151.—Pen of three Shearling EWES . . . . .	10	5	2



## PIGS.

	First Prize.	Second Prize.	Thrd Prize
	£	£	£
<b>BERKSHIRE.</b>			
CLASS			
152.—BOAR, farrowed in 1910, 1911 or 1912 . . .	7	3	2
153.—Pair of BOARS, farrowed in 1912 . . .	5	2	1
154.—Breeding Sow, farrowed before 1913 . . .	7	3	2
155.—Pair of Breeding Sows, farrowed in 1913 . . .	5	2	1
<b>SPECIAL PRIZE.</b>			
(Offered by the British Berkshire Society.)			
Best Boar or Sow in the Berkshire Classes entered in, or eligible for, the Herd Book, whose Sire and Dam, together with the name of its Breeder, are entered in the Catalogue . . . . .	5		
<b>LARGE BLACK.</b>			
156.—BOAR, farrowed in 1910, 1911 or 1912 . . .	7	3	2
157.—Pair of BOARS, farrowed in 1913 . . .	5	2	1
158.—Breeding Sow, farrowed before 1913 . . .	7	3	2
(The Prizes in Class 159 are offered by the Large Black Pig Society.)			
159.—Breeding Sow, not exceeding 12 months old on May 1st, 1913 . . . . .	7	3	2
160.—Pair of Breeding Sows, farrowed in 1913 . . .	5	2	1
<b>LARGE WHITE.</b>			
161.—BOAR, farrowed in 1910, 1911 or 1912 . . .	7	3	2
162.—Pair of BOARS, farrowed in 1913 . . .	5	2	1
163.—Breeding Sow, farrowed before 1913 . . .	7	3	2
164.—Pair of Breeding Sows, farrowed in 1913 . . .	5	2	1
<b>SPECIAL PRIZES.</b>			
(Offered by the Royal Cornwall Agricultural Association.)			
Best Boar in Class 152 153, 156, 157, 161, or 162, the property of a resident in Cornwall . . . . .	3		
Best Sow in Class 154, 155, 158, 159, 160, 163, or 164, the property of a resident in Cornwall . . . . .	2		
<b>MIDDLE WHITE.</b>			
165.—BOAR, farrowed in 1910, 1911 or 1912 . . .	7	3	2
166.—Pair of BOARS, farrowed in 1913 . . .	5	2	1
167.—Breeding Sow, farrowed before 1913 . . .	7	3	2
168.—Pair of Breeding Sows, farrowed in 1913 . . .	5	2	1

	First Prize.	Second Prize.	Third Prize.
<b>PIGS—continued.</b>	£	£	£
<b>TAMWORTH.</b>			
<b>CLASS</b>			
169.—BOAR, farrowed in 1910, 1911, or 1912 . . . .	7	3	2
170.—Pair of BOARS, farrowed in 1913 . . . .	5	2	1
171.—Breeding Sow, farrowed before 1913 . . . .	7	3	2
172.—Pair of Breeding Sows, farrowed in 1913 . . . .	5	2	1
<b>ANY BREED.</b>			
(The Prizes in Classes 173 or 174 are offered by Messrs. Chas. and Thos. Harris & Co., Ltd., Calne, Wilts.)	Silver Cup, value		
173.—Boar most suitable for producing the best Class of Pigs for Wiltshire Bacon . . . .	£5 5s.		
174.—Hilt or Sow, ditto, ditto . . . .	ditto		
<b>PRODUCE.</b>			
<b>CIDER.</b>			
(Open to Growers or Makers.)			
(The Winners in these Classes can have Gold, Silver, or Bronze Medals instead of Money Prizes, should they prefer it.)			
175.—Cask of not less than 18 and not more than 30 gallons of CIDER, of the 1912 vintage, of a specific gravity not exceeding 1·015 at 60° Fahr.	3	2	1
176.—12 Bottles of CIDER, of the 1912 vintage, ditto. . .	3	2	1
177.—Cask of not less than 18 and not more than 30 Gallons of CIDER, of the 1912 vintage . . . .	3	2	1
178.—12 Bottles of CIDER, of the 1912 vintage. . . .	3	2	1
179.—12 Bottles of CIDER, of any year previous to 1912 vintage . . . .	3	2	1
<b>CHEESE.</b>			
180.—3 Cheddar CHEESES (not less than 56 lbs. each) made in 1912 . . . .	15	10	5
181.—3 Cheddar CHEESES (not over 56 lbs. each) made in 1912 . . . .	8	5	3
182.—3 Single Gloucester or Wilts CHEESES made in 1913 . . . .	6	4	2
183.—8 Loaf or other Truckle CHEESES made in 1912 . .	5	3	2
184.—3 Caerphilly CHEESES, made in 1913 . . . .	5	3	2

	First Prize.	Second Prize.	Third Prize.	Fourth Prize.
PRODUCE— <i>continued.</i>	£ s.	£ s.	£ s.	£ s.
<b>CREAM CHEESE, BUTTER &amp; CREAM.</b>				
<hr/>				
<i>(These Classes are not open to Professional Teachers.)</i>				
<i>(The Prizes in Classes 188, 189, 193 and 195, are offered by the Cornwall County Council.)</i>				
CLASS				
185.—3 Cream or other Soft CHEESES . . . . .	3 0	2 0	1 0	0 10
186.—3 lbs. of Fresh (or very slightly salted) BUTTER . . . . .	4 0	3 0	2 0	1 0
187.—3 lbs. of Fresh (or very slightly salted) BUTTER, made from scalded cream . . . . .	4 0	3 0	2 0	1 0
188.—2lbs. of Fresh (or very slightly salted) Butter, made in Cornwall from raw separated cream . . . . .	1 5	0 15	0 7/6	0 5
189.—2lbs. of Fresh (or very slightly salted) Butter, made in Cornwall from scalded or clotted cream . . . . .	1 5	0 15	0 7/6	0 5
190.—3 lbs. of BUTTER, in the making of which no salt has been used, to be judged on the last day of the Show . . . . .	4 0	3 0	2 0	1 0
191.—Not less than 12 lbs. of Fresh BUTTER packed for transit . . . . .	3 0	1 10		
192.—12 lbs. of Keeping BUTTER, in a jar or crock, to be delivered to the Secretary 4 weeks before the Show . . . . .	4 0	3 0	2 0	1 0
193.—2lbs. of Butter, to be tested for its keeping qualities, allowed to be slightly salted, but no other preservatives to be used, to be delivered to the Secretary 30 days before the Show . . . . .	2 0	1 5	0 15	0 10
194.—4 half-pounds of Scalded Cream . . . . .	3 0	2 0	1 0	0 10
195.—2lbs. of Clotted Cream in one glass dish, ready for table, scalded from Milk by a resident in Cornwall . . . . .	1 0	0 10	0 5	

## COMPETITIONS.

## BUTTER-MAKING.

	First Prize.	Second Prize.	Third Prize.	Fourth Prize.
	£ s.	£ s.	£ s.	£ s.
(No Winner of a first prize given by this Society for Butter-making during the last 3 years is eligible to compete in Class 197 or 199.)				
(For Conditions and Regulations see Entry Form.)				
(The Prizes in Classes 196, 198, 200, 202, 203, and 205 are offered by the Cornwall County Council, except the First Prize in Class 200, which is offered by the Royal Cornwall Agricultural Association.)				
196.—For Students over 16 years of age who have passed through the Cornwall County Dairy School. On the 1st day of the Show	2 0	1 10	1 0	0 10
(If more than 18 competitors two additional Prizes of 5s. each will be awarded.)				
197.—For first year students who have been through a course of instruction in Butter-making at any County Council School since the Society's last Show. On the 1st day of the Show	4 0	3 0	1 10	1 0
198.—For Butter-Making in accordance with the system taught in the Cornwall County Dairy School by competitors who have not previously won a Prize at the Royal Cornwall Agricultural Show. On the 2nd day of the Show	2 0	1 0	0 15	0 10
199.—For Men and Women, on the 2nd day of the Show	4 0	3 0	1 10	1 0
200.—For Students, not over 16 years of age, who have passed through the Cornwall County Dairy School. On the 3rd day of the Show	3 0	1 5	0 15	0 5
(If more than 18 competitors, a 5th Prize of 5s. will be awarded.)				
201.—For Men and Women on the 3rd day of the Show	4 0	3 0	1 10	1 0
202.—For Cornish Students attending an Elementary Day School in Cornwall, who have passed through the Cornwall Dairy School. On the 4th day of the Show	1 5	1 0	0 15	7/6 5/-
203.—For the Wives, Daughters, or Sons of bona fide Cornish Farmers. On the 4th day of the Show	2 0	1 0	0 15	0 10 0 5
(The Prizes in Class 204 are offered by the Proprietors of the "West Briton and Cornish Advertiser.")	Silver Tea Serv. value	Silver Rose Bowl value		
204.—For Farmers' Wives, Daughters, or Sons, on the 4th day of the Show	6 0	4 0		

BUTTER-MAKING—continued.		First Prize.	Second Prize.	Third Prize.	Fourth Prize.
CHAMPION CLASSES.		£ s.	£ s.	£ s.	£ s.
(The Prize in Class 205 is offered by the Royal Cornwall Agricultural Association.)					
205.—For Winners of First and Second Prizes in Classes 196, 198, 200, 202, 203, or at any previous Meeting of the Royal Cornwall Agricultural Association. On the 5th day of the Show	3 0				
206.—For winners of first and second prizes in the Butter-making Classes 197, 199, 201 and 204, or at any previous meeting of the Society. On the 5th day of the Show					
1st Prize, Gold Medal. 2nd Prize, Silver Medal, 3rd Prize, Bronze Medal.					
MILKING.					
(£3 towards the Prizes in Classes 207, 208 and 209 are contributed by the Hon. T. C. Agar Robartes, M.P., the Hon. J. R. de C. Boscawen, and Sir G. Croydon Marks, M.P.					
207.—For Men 18 years of age and over	1 15	1 5	1 0	0 15	
208.—For Women 18 years of age and over	1 15	1 5	1 0	0 15	
209.—For Boys and Girls under 18 years of age	1 15	1 5	1 0	0 15	
CHAMPION CLASS.					
(The First Prize in Class 210 is offered by the Hon. J. R. de C. Boscawen, and the Second Prize by General Sir R. Pole Carew, M.P.					
210.—For Winners of First and Second Prizes in Classes 207, 208 and 209	2 2 1 0				
SHOEING.					
211.—For NAG HORSE SHOEING, by Smiths 25 years of age and over on the day of the competition, who have not previously won the First Prize in a corresponding Class at one of the Society's meetings, or a Champion Prize at any National or County Agricultural Society's Show, on the 2nd day of the Show	4 0	3 0	2 0	1 0	
212.—For CART HORSE SHOEING, by Smiths 25 years of age and over, ditto, ditto, on the 3rd day of the Show	4 0	3 0	2 0	1 0	
213.—For SHOE MAKING or TURNING, by Smiths under 25 years of age on the day of the competition, the patterns and descriptions of the Shoes to be supplied by the Judge, on the 4th day of the Show	4 0	3 0	1 0	0 10	
214.—For SHOE MAKING or TURNING, by Smiths 25 years of age and over on the day of the competition, the patterns and descriptions of the Shoes to be supplied by the Judge, on the 4th day of the Show	4 0	3 0	2 0	1 0	

# CONDITIONS AND REGULATIONS FOR LIVE STOCK.

## GENERAL.

### ENTRIES.

1. The following are the Fees payable for Stock entries made on or before April 3. After that date and up to April 10, entries (except in the Harness and Jumping Classes) will only be received on payment, in each case, of double the fee named below. *Exhibitors are requested to note that no exception can be made to this.* The entry fee is not returnable to an Exhibitor who enters an Animal in a Class for which it is ineligible, or for entries that are withdrawn after the date of entry has expired.

	MEMBERS.	NON-MEMBERS.
	(see Reg. 5 below)	
Horses other than in the Harness or Jumping Classes (see Reg. 2 below) for each Entry, including Horse Box .. ..	15s.	30s.
Cattle, Sheep and Pigs .. .. for each Entry	10s.	20s.

For particulars as to fees in the Produce, Poultry, Butter-Making, Milking, and Shoeing Classes, see Entry forms.

2. Animals entered in the Harness and Jumping Classes, and not having a box in the Yard, must be in the Yard by 2 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as they have been judged. Entries in the Harness and Jumping Classes, if no Horse Box is required, must reach the Secretary not later than May 8. If a Box is required the entry must reach the Secretary on or before April 3, or, at double fees, by April 10. The Entry Fees are :—

	MEMBERS.	NON-MEMBERS.
Without Horse Box, for each Entry .. ..	5s.	10s.
With Horse Box, do. .. ..	15s.	30s.
Local Classes 32, 33, 34 and 44, and Donkeys (without Box) .. ..	2s. 6d.	5s.

3. No Exhibitor can make more than three entries in any one Class of Horses, Cattle, Sheep or Pigs, except in the Harness or Jumping Classes.

4. No Entry will be received unless the fee accompanies it, and (if the Exhibitor is a Member of the Society) the subscription for the year, unless previously paid, together with any arrears that may be due.

5. The privilege of entering at Members' fees is strictly limited to members of the Society or of the Royal Cornwall Agricultural Association, elected on or before January 28, 1913, and subscribing not less than £1 annually.

6. Where a Prize is offered for a *pair* or *pen* of Animals, single entry-fees only are payable for each *pair* or *pen*, and only one entry-form must be used.

7. All Entries must be made on the printed forms to be obtained of the Secretary (Thos. F. Plowman, 3, Pierrepont Street, Bath), and, in applying for Forms, Exhibitors are requested to state how many entries they wish to make of either Horses, Cattle, Sheep or Pigs, as each Stock entry must be made on a separate form.

8. Every Exhibitor or Competitor is requested to carefully examine the List of Prizes and Conditions, as he will be held responsible for the correctness of his Certificate of Entry. An Exhibitor omitting to give information asked for on the Entry Form, with regard to the age, breeder, name, colour, sire, dam, &c., of an animal will be liable to have his entry disqualified, and if an exhibitor desires that his animal shall compete for any special prize offered, he must notify this on the entry form, or the animal will not be allowed to compete.

9. If an Exhibitor or Competitor fails, when called upon by the Stewards or Council, to prove the correctness of his Certificate of Entry to their satisfaction, the Entry may be disqualified, and any award made to it cancelled.

10. An Exhibitor who has made, in due time, an entry of Horses, Cattle, Sheep or Pigs, in a particular class, will be permitted, up to Friday, April 24, to withdraw the entry of such animal, and to substitute for it the entry of another animal in the same class, on payment of the difference, if any, between the amount of the entry fee originally paid for the animal withdrawn, and the post entry fee. When, after entry, an animal dies, the exhibitor will be permitted to substitute another entry for it, in the same class, without payment of any further fee, upon affording evidence of death and furnishing particulars of the substituted entry in time for the alteration to be made in the published catalogue.

11. An animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of Special Prizes for exhibits already entered in any particular Class or in Class 73.

12. Every exhibit must be the *bona fide* property of the Exhibitor both at the time of entry and on the first day of the Exhibition.

#### SHOW YARD.

13. The Yard will be open for the reception of Horses (see Regulation 2 for Harness and Jumping Horses), Cattle, Sheep and Pigs, on Saturday and Monday, May 24 and 26, from 7 A.M. to 6 P.M. Agricultural Horses and Hunters will also be received from 6 to 8 o'clock on the morning of the first day of Show, but all other Stock Entries (except Hackneys and Ponies, which must be in the Yard before 8 a.m. on Friday, May 30), must be in the Yard the previous day. A label denoting the number of each entry will be sent by the Secretary and must be securely affixed to the head of the Animal. The carriage of exhibits must in all cases be paid by the Exhibitor. No exhibit subject to charges will be received by the Officers of the Society.

14. If an animal is brought into the Show Yard without having been entered for exhibition, the owner shall be liable to a fine of £2 and to the forfeiture of any prize awarded to him or her.

15. All Live Stock (see Conditions 2, 13, 39 and 40 for exceptions with regard to Horses) must remain in their places in the Show Yard until after 6 o'clock in the afternoon of the last day of the Show, and shall under no circumstances be taken out of their places in the interval without the special permission of the Stewards.

16. During the time the Show is open to the public no rug or cloth shall be hung up so as to conceal any animal in a horse-box or stall, except with the special permission of the Steward of the department. All sheets used for the purpose must be removed before 9 o'clock on each day the exhibition is open to the public and must not be replaced until after the closing hour of the Show each day.

17. All Exhibits and all persons in charge of the same, will be subject to the Orders, Regulations and Rules of the Society, and the Stewards shall have the power to remove from the Yard the Stock or property belonging to, and to cancel the admission ticket of, any Exhibitor who shall infringe any of the Regulations or Conditions of the Meeting, or who shall refuse to comply with any instructions given by the Stewards, without any responsibility attaching to the Stewards or the Society in consequence of such removal.

18. No animal shall be decorated with colours other than the Society's Prize Rosettes.

19. No person shall be allowed to fix any placard, or to take down any official placard, in the Yard, without the written permission of the Stewards.

20. All persons in charge of Exhibits will be subject to the orders of the Stewards, and will be required to parade or exhibit the animals in their charge at such times as may be directed by the Stewards. Servants must be in attendance each day during the Show at least a quarter of an hour before the time appointed for exhibiting the animals under their charge in the Show rings. Servants in charge of animals must see that the animals' boxes or stalls are kept clean. No oil or cooking stove of any description must be lighted in the Horse Boxes and any one found offending in this respect will be dealt with in accordance with Regulation 33. Owners of animals exhibited will be held responsible for the behaviour of their Servants, and for the consequences of any misconduct of such Servants.

21. Servants in charge of Stock at night must, if they leave the yard, return before 10 p.m., or they will not be admitted.

22. On the day previous to the opening and on each day of the Show hay or green food and straw will be supplied by the Society free of expense to exhibitors at the Forage Stores in the Show Yard. Servants must apply at the Forage Stores for their Forage Tickets after they have brought their animals into the Yard. Corn, meal, and cake can be obtained in the Show Yard at fixed prices.

NOTE.—For the convenience of Exhibitors wishing to sell their animals, a Register will be kept at the Secretary's Office, in which they may enter the prices.

#### TICKETS.

23. Each Exhibitor of Live Stock will have a Free Ticket of admission to the Show Yard sent to him, except in the case of a Member of the Society, who will receive his Member's Ticket in lieu of an Exhibitor's Ticket. Tickets for the use of Servants in charge of Live Stock remaining in the Yard will also be sent, and the Exhibitor will be held responsible for the proper use of such Tickets. In the case of animals not having a box in the Yard, a Servant's Ticket will not be required as the official label will admit the Driver or Rider, Horse and Vehicle into the Yard. In case of transfer or other improper use of a Ticket the Exhibitor will be required to pay a fine of £1 for each case. Exhibitors will be held responsible for the attendance at each Parade of as many Servants as Tickets have been issued for.

#### RESPONSIBILITY.

24. Neither the Society nor any of its Officers or Servants shall be in any way responsible or accountable for anything that may happen (from any cause or circumstance whatever) to Exhibitors or their Servants, or to any animal or article exhibited, or property brought into the Show Yard, or otherwise for anything else in connection with, or arising out of, or attributable to, the Society's Show, or these or any other Conditions or Regulations prescribed by the Society in relation thereto.

25. Each Exhibitor shall be solely responsible for any consequential or other loss, injury, or damage done to, or occasioned by, or arising from, any animal or article exhibited by him, and shall indemnify the Society against all legal or other proceedings in regard thereto.

26. The Society, its Officers and Servants, will not be liable for any errors or mistakes that may happen in placing or penning the Stock or Articles to be exhibited, but the Servants in charge of the same must see that they are placed or penned according to their entries.

#### DISQUALIFICATIONS.

27. The use of resin, soap, sawdust above the knee, or other substances designed to give an artificial appearance; cording; or any other improper means adopted in showing an animal in the Agricultural Horse Classes will be regarded as a disqualification.

28. No animal which has been exhibited as Fat Stock at any Show shall be eligible to compete for the Prizes offered in this Prize Sheet.

29. An animal having any unsoundness likely to be transmitted to its progeny shall be disqualified thereby from receiving any Prize offered by or through the Society.

30. If it shall be proved to the satisfaction of the Stewards or Council that an Exhibitor or Competitor has knowingly signed an incorrect Certificate, or knowingly given an incorrect Pedigree of any animal, or has attempted to enter an animal or other exhibit or to obtain a Prize by any other unfair means at this or any other Agricultural Society's Meetings, or is under exclusion from any Breed Society for fraudulent practices, the Council shall have the power to cancel all awards made to such Exhibitor or Competitor, to disqualify him or her from exhibiting or competing at future Meetings of the Society, and to inform other Agricultural Associations of their action in this respect.



**PENALTIES.**

31. As the non-exhibition of animals entered for the Show causes unnecessary preparations and expense, and disarranges the Show Yard, any person entering Stock, and failing to exhibit the same, shall pay a penalty of 10s. for each entry, unless a Certificate, under the hand of the Exhibitor or his authorised agent, be lodged with the Secretary of the Society, before the day of exhibition, certifying that such non-exhibition is caused either by—(1) the death of the animal or animals; or (2) contagious or infectious disease (confirmed by the explanatory certificate of a Veterinary Surgeon); or (3) by its becoming ineligible for the Class in which it has been entered. The fine is not remitted in the case of an exhibitor selling an animal between the time of entry and the date of the Show.

32. Every Exhibitor will be required to undertake to forfeit and pay to the Society the sum of £20, as and for liquidated damages, if any animal which he exhibits be, to his knowledge, suffering from any contagious or infectious disease, and the Stewards are empowered to prevent the entry of any diseased animal into the Yard, or to have it removed therefrom.

33. Any infringement of any of these or any other prescribed Regulations or Conditions will subject the Exhibitor to a fine of £1 by the Stewards, and to the forfeiture, by order of the Council, of any prize to which he may be entitled (in addition to all other consequences attaching to such infringement). The Council reserves to itself the right to inform other Agricultural Associations of any decision it may come to with respect to an Exhibitor.

**AWARDS.**

34. The Society reserves to itself the right to withhold any prize, if, in the opinion of the Stewards, the conditions and regulations have not been properly complied with.

35. **In any Class of Stock in which Second and Third Prizes are offered by the Society, and where there are less than three entries, a Silver Medal will be given as Second Prize instead of Money, and where less than six entries, a Bronze Medal will be given as Third Prize instead of Money.**

36. Only the signed awards of the Judges are accepted by the Society as evidence that a prize has been awarded, and the production of the prize card or the rosette by an Exhibitor will not entitle him to the prize.

37. The certificate of the Veterinary Inspector, whether as to age or soundness, shall be required only in cases where the Judges are in doubt, or where the Stewards may consider it necessary. (See also Regulation 47 with reference to Stallions and Mares.) The decision of the Inspector in such cases shall be final and conclusive; and in case it shall be against the animal to which a Prize has been awarded, such animal shall be disqualified from receiving such Prize.

**PROTESTS.**

38. Any Exhibitor wishing to lodge a protest having reference to Live Stock exhibited at this meeting must make the same in writing on a form to be obtained from the Secretary, and deposit with him the sum of £3. If on investigation the protest is not sustained to the satisfaction of the Stewards, the sum thus deposited shall, at the discretion of the Council, be forfeited to the funds of the Society. All protests (except in the Harness or Jumping Classes) must be delivered at the Secretary's Office in the Showyard, on the day on which the award is made, and no protest will be subsequently received, unless a reason satisfactory to the Stewards be assigned for the delay. Any protest against an award in the Harness or Jumping Classes must be made to the Steward in the ring immediately after the judging of the class to which it refers, and a deposit of £3 must, at the same time, be handed to the Steward. The Stewards will consider such protests at 11 o'clock on the following day at the Secretary's Office, at which time and place any person making a protest must attend or be represented by his authorised agent. The decision of the Stewards shall be final.

**APPLYING TO CERTAIN CLASSES ONLY.**

**HORSES.**

39. Horses can be removed from the Yard at night on deposit by the Exhibitor of £3 at the Finance Office, which sum will be forfeited if the Horse does not return at 8 A.M. each day during the Exhibition. This regulation does not apply to Animals not having a box in the Yard entered in the Harness and Jumping Classes only.

40. Exhibitors must provide saddles for Horses in Classes 13, 14, 15 and 38 to 49, as they are to be ridden; and vehicles and harness for those in Classes 26 to 37, which are to be driven.

41. No Horse, unless a Foal, will be admitted into the ring without a proper bit.

42. The Prizes for Stallions in Classes 1, 17 and 22 will be withheld until a certificate from the owner is delivered to the Secretary that the Horse has served at least 10 Mares during the current season.

43. All Foals must be the offspring of the Mares with which they are exhibited, and the name of the Sire of the Foal must be stated on the certificate of entry.

44. Mares entered as in-Foal shall, except as otherwise stated, hereafter be certified to have produced a living Foal before August 1st of the year of the Show. If the required certificate, which must be on a form obtainable from the Secretary, is not received by September 30, 1913, the prize awarded will be forfeited.

45. Horses may, at the discretion of the Stewards, be measured, and the measurement shall be taken in the shoes worn by the entry at the time of judging, and these shoes shall not be removed to allow of the entry being shown in another class.

46. In the Hackney and Harness Classes for Hackneys exceeding 14 hands (except yearling colts and fillies) no shoe (nails included) may exceed 2 lbs. in weight, and for Ponies not exceeding 14 hands, yearling colts and yearling fillies, no shoe (nails included) may exceed 1½ lbs. in weight.

47. All Stallions and Mares (yearlings and foals excepted) to which prizes have been awarded in the breeding classes shall be examined by the Society's Veterinary Inspector, and unless pronounced free from indications of hereditary disease shall be ineligible to receive the prize. The owner of an Animal rejected under this Regulation may, upon his application in writing to the Secretary, be furnished with a copy of the Veterinary Certificate.

48. The following special conditions apply only to the Prizes offered by the Shire Horse Society, viz.: the owner of the animal entered to have been a Member of the Bath and West and Southern Counties Society or Royal Cornwall Agricultural Association, for not less than six months previous to April 3, 1913; a Mare five years old, or upwards, must produce a living Foal in the current year, or have had a living Foal in the preceding year; in the case of in-Foal Mares a certificate of foaling must be lodged with the Secretary of the Shire Horse Society before the medal will be despatched. No animal to compete which has won the Shire Horse Society's Gold Medal during the current year, the Royal and London Shows being excepted; the winning animal to be entered, or eligible for entry, in the Shire Horse Society's Stud Book; and a certificate that she is free from hereditary disease to be lodged with the Secretary of the Shire Horse Society, the Veterinary examination to be made on the ground by the Veterinary Inspector appointed for the Show. A prize of £5 will also be awarded to the breeder of the animal winning the Medal, provided that he is a member of the Shire Horse Society, and that the Dam is a Mare registered in the Shire Horse Stud Book. All awards must be completed within six months of the date upon which the Medal was awarded or they will be void.

49. The following special conditions apply only to the Prize offered by the Hunters' Improvement and National Light Horse Breeding Society for Hunter Brood Mares, viz.:—The Mare awarded the Medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's appointed

**Veterinary Inspector**, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground. Any Hunter Brood Mare, 8 years old or over, having been either awarded one of the Society's Gold Medals in 1911, 1912, or 1913, or selected as Reserve for same, or having been passed sound after January 1, 1911, by a Veterinary Surgeon appointed by the Hunters' Improvement and National Light Horse Breeding Society, shall be exempt from further examination upon the owner producing at the time of exhibition the official veterinary certificate issued by the Secretary of that Society.

50. The following special conditions apply only to the Prize offered by the Hunters' Improvement and National Light Horse Breeding Society for best Mare or Gelding of any age. The Hunter awarded the medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's Veterinary Inspector, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground. The selected Mare, if unregistered, or the selected Gelding, if unentered, must be registered or entered within a month of the award in the Hunter Stud Book. No animal may take more than one of these medals in 1913.

**NOTE.**—No awards of the above-named Society's Prizes or Medals to a Hunter named and registered in the Hunter Stud Book and subsequently entered by the owner under another name, will be recognised or confirmed unless a re-entry has been previously lodged by the owner for the Hunter Stud Book and the new name registered by the Society.

51. The following special conditions apply only to the Silver Medal offered by The Hackney Horse Society for Hackney Mare or Filly:—

1. No animal can take more than one Silver Medal in any one year (the London Hackney Show excluded).
2. If not already registered in the Stud Book, the entry of the winner must be duly lodged with the Hackney Horse Society, and if not completed before the expiration of one month after the date of the Show the Medal shall pass to the reserve number.
3. A certificate of soundness from hereditary disease, signed by the Local Society's appointed Veterinary Inspector after his examination on the Show Ground, must be lodged with the Secretary of the Hackney Horse Society.

**NOTE.**—Horses in Saddle and Harness Classes are eligible to compete for the Silver Medal, for which they must be exhibited in hand.

52. The following special conditions apply only to the Silver Medal offered by the Hackney Horse Society in the Single Harness Classes:—All horses competing for the Medal must be by a *Registered Hackney Sire*. A certificate signed by the Breeder of the animal must be forwarded to the Secretary of the Hackney Horse Society before the Medal is despatched. Each animal must be examined by a qualified veterinary surgeon on the Show Ground, and a certificate of soundness must be supplied. The Medal must be open to all Classes, and not confined to local competition, and the name and number of the sire, and the name and address of the breeder of each animal, should appear in the catalogue. No animal can take more than one Medal in any one year.

53. The following special conditions apply only to the Medals offered by the Polo and Riding Pony Society. Height of Stallions and Colts not to exceed 15 hands, and Mares and Fillies not to exceed 14.2 as confirmed by Hurlingham Certificate or that of a qualified Veterinary Surgeon. Ponies having previously won the Polo and Riding Pony Society's Gold Medal during the current year not to be eligible to compete, and no Pony is qualified to take more than one Silver Medal under the same scheme during any one year. The entry of the Winner must, if not already entered in the Supplement or Registered in the Stud Book, be duly lodged with the Polo and Riding Pony Society before the Medals will be despatched. All Brood Mares to have foal-at-foot or be due to foal in 1913, or if they have foaled in 1913 and the foal has died, a veterinary certificate to the

effect that the foal was born alive to be provided. All foals to be by a Thoroughbred, Eastern, Registered or Entered Sire.

54. The following special conditions apply to Horses entered in the Jumping Competitions:—The jumps may consist of single hurdle, gate, double hurdle, bank, wall and water jump, at the discretion of the Judge and Stewards. Each horse competing shall have its catalogue number affixed to its breast in such a way that it may be easily seen by the general public. Each horse competing shall be ridden at the fences in the order announced by the Stewards. In case of a horse refusing his fence it shall be allowed two further trials, and *no more*. No change of rider shall take place during the competition. The Judge may take into consideration the style in which the fences are jumped, as well as the height and breadth, and his decision shall be final.

#### CATTLE.

55. All cattle must be properly secured to the satisfaction of the Officers of the Society, on being brought to the gate of the Yard, or they will not be admitted.

56. All Bulls must have a ring or clamp attached to the nose, and in the aged Classes must be provided with a strong chain, and be led with a proper stick.

57. All cattle will be required to be paraded in the ring at least once a day at the discretion of the Stewards.

58. No Bull calved before January 1st, 1911, or in the Aberdeen-Angus Classes before December 1st, 1910, will be eligible to receive a Prize until certified to have served not less than six different Cows (or Heifers) previous to June 1st, 1913, and to be the sire of live calves dropped in the year 1913, or in the Aberdeen-Angus Classes after December 1st, 1912.

59. No Cow or Heifer, entered as in-milk, will be eligible to receive a Prize until certified to have had a living calf within the fifteen months preceding the date of Show, or that the Calf, if dead, was born at the proper time.

60. Every Cow or Heifer in-milk shall be milked dry in the Show Yard at 7.30 p.m. on the evening preceding the day of judging, in the presence of an officer of the Society appointed for the purpose.

61. Any animal in the Cattle Classes found to be artificially coloured will be disqualified.

62. Any person selling milk in the Yard, except in the place appointed by the Stewards, will be fined 5s. for each infringement of this Regulation. All Milk will be purchased by the Society's Milk Contractor, and notice as to the time of collection will be posted in the Show Yard. The Milk from Cows exhibited must not be taken out of the Yard for Sale without the permission of the Stewards.

63. The following conditions apply only to the prizes offered for Pedigree Shorthorn Dairy Cows:—The Cows and Heifers entered will be clean milked out on the evening preceding the opening of the Show to the satisfaction of the Stewards and will be again milked in the ring on the first morning of the Show in the presence of the Judge, who shall see the Milk weighed, and any animal not yielding up to the following standard will not be awarded a prize:—

		If she has calved within three calendar months of the first day of the Show.	If she has calved more than three calendar months before the first day of the Show.
Cows, 4 years and upwards, <i>not less than</i>	..	25 lbs. of Milk	20 lbs. of Milk
Cows, 3 years old and under 4 " "	..	20 " " "	15 " " "
Heifers, under 3 years old " "	..	15 " " "	10 " " "

64.—The following conditions apply only to Class 73:—All Bulls competing for this prize must be the *bona fide* property of the Exhibitor residing in the District for which the prize is offered, and such Bulls must be there located from the time

of entry until the Show. All Bulls must be eligible for and entered in Coates's Herd Book with a registered number, or their pedigrees sent for such entry previous to the Show. The entry as produce under Dam will not be sufficient. No Bull can take more than one District Prize offered by the Shorthorn Society.

65.—In the Kerry and Dexter Classes clipping (except in the case of a few hairs on the top of the tail) will disqualify an animal.

66. The following condition applies to animals entered in the Butter and Milk Test Classes:—The date of last calving must be given on the entry form and, when an animal calves between the date of entry and that of the Show, notice of such calving must be sent to the Secretary, or the animal may be disqualified.

67. Except in the Local and Dairy Classes, every animal entered for competition must be entered, or certified as eligible to be entered, in the Herd Book of its Breed, where such Herd Book exists and has been in existence for not less than seven years. Where an animal is entered by the Exhibitor as eligible for entry in the Herd Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

#### SHEEP.

68. Each pen of Ewes must be of the same Flock.

69. The following conditions apply to the special prizes offered by the South-down Sheep Society:—The sheep competing must be entered or eligible for entry in the Flock Book. In the Class for pairs of ram lambs, exhibitors will have the privilege of competing for the medal with any one of their exhibits.

70. Except in the Local Classes, every animal entered for competition must be entered or certified as eligible to be entered, in the Flock Book of its Breed, where such Flock Book exists and has been in existence for not less than seven years. Where an animal is entered by the Exhibitor as eligible for entry in the Flock Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

#### PIGS.

71. The pair of Pigs in each pen must be of the same litter.

72. All Sows farrowed before 1913 shall be certified to have had a litter of live Pigs within six months preceding the first day of exhibition, or to be in-pig at the time of entering, so as to produce a litter of Pigs, farrowed at their proper time, before the 1st of September following. In the case of in-Pig Sows the Prize will be withheld until the Exhibitor shall have furnished the Secretary with a certificate of farrowing as above. If the required Certificate, which must be on a form obtainable from the Secretary, is not received on or before the 15th September following, the Prize awarded will be forfeited.

73. All Pigs exhibited with a Sow shall be her own produce, of the same litter, and not exceeding two months old at the time of the Show.

74. No Sow above 18 months old that has not produced a litter of live Pigs shall be eligible to compete in any of the Classes.

75. Any animal in the Pig Classes found to be artificially coloured or oiled will be disqualified.

76. Should any question arise as to the age of any exhibit in the Pig classes, the Stewards shall, at the request of the Judge, have the state of their Dentition examined by a competent authority. If the state of the Dentition shall indicate that the age of any of the Pigs does not agree with the Dentition Test, the Stewards shall report the same to the Council, who shall have power to disqualify such Pig or Pigs. The following is the state of Dentition in Pigs which will be considered as indicating that they exceed the ages specified below:—Six Months: Pigs having their corner permanent incisors cut will be considered as exceeding this age. Nine months: Pigs having their permanent tusks more than half up, will be considered as exceeding this age. Twelve Months: Pigs having their central permanent incisors up, and any of the three first permanent molars cut,

will be considered as exceeding this age. Fifteen Months: Pigs having their lateral temporary incisors shed, and the permanents appearing, will be considered as exceeding this age. Eighteen Months: Pigs having their lateral permanent incisors fully up will be considered as exceeding this age.

**CIDER, DAIRY PRODUCE, POULTRY, BUTTER-MAKING, MILKING, AND SHORING  
COMPETITIONS.**

*For Conditions and Regulations see entry forms.*

**ADJUDICATION OF PRIZES.**

77. The Judges are instructed as follows, and entries are received subject to this :  
*a* Not to award any Prize or Commendation unless the entry possesses sufficient merit.

*b.* Not to award a Prize to any Horse or Mare, unless it is free from unsoundness likely to be transmitted to its progeny ; or if a Gelding, unless free from unsoundness ; in either case, an accident having temporary consequences only excepted, and in awarding the Hunters' Improvement Society's Medals to give preference to animals showing weight-carrying properties.

*c.* In awarding Prizes to Cattle, Sheep and Pigs, to decide according to the relative merits of the animals for Breeding purposes, and not to take into consideration their present value to the butcher.

*d.* To make the milking capacity and form of udder one of the chief points in awarding prizes to cows and heifers in Milk.

*e.* To draw the attention of the Stewards to any exhibit that has been improperly prepared for exhibition, or is wrongly entered.

*f.* To give in a "RESERVE NUMBER" in each Class, indicating the animal or exhibit which in their opinion possesses sufficient merit for the Prize, if the animal or exhibit to which the Prize is awarded should become disqualified. Should the "Reserved Number" succeed to a prize, and be itself disqualified, the prize will be forfeited.

*g.* Immediately after the Judging to deliver to the Stewards their signed awards stating the numbers to which the Prizes are adjudged, and noting all disqualifications.

78. Should any question arise upon which the Judges may desire a further opinion, the Stewards shall provide them with a Referee.

**PAYMENT OF PRIZES.**

79. Cheques for the Prizes awarded (except where further qualification of an animal is required) will be drawn at the meeting of the Finance Committee held in July, 1913, and will then be forwarded by post to the Exhibitors to whom they have been awarded.

**INTERPRETATION OF CONDITIONS**

80. The Society reserves to itself by its Council the sole and absolute right to interpret these or any other prescribed conditions and regulations, or Prize Sheets, and to arbitrarily settle and determine all matters, questions or differences in regard thereto, or otherwise arising out of or connected with or incident to the Show. Also to refuse and to cancel any entries, disqualify Exhibitors, prohibit exhibition of entries, vary or cancel awards of prizes or reserved numbers, and relax conditions, as the Society may deem expedient.

# POULTRY.

(Under Poultry Club Rules).

The Birds in Classes 1 to 49 must have been hatched previous to January 1, 1913.

First Prize.	Second Prize.	Third Prize.
£ s.	£ s.	£ s.

## CLASS

1.—ANY DISTINCT BREED, except Bantams—Cock and 3 Hens, bred in 1911 or 1912, the property of one Exhibitor, mated for breeding . . . . .	3	0	2	0	1	0
2.—COCHIN or BRAHMA—Cock . . . . .	1	0	0	15	0	10
3.—Ditto—Hen . . . . .	1	0	0	15	0	10
4.—PLYMOUTH ROCK—Cock . . . . .	1	0	0	15	0	10
5.—Ditto—Hen . . . . .	1	0	0	15	0	10
6.—ORPINGTON (Buff)—Cock . . . . .	1	0	0	15	0	10
7.—Ditto—Hen . . . . .	1	0	0	15	0	10
8.—ORPINGTON (Black)—Cock . . . . .	1	0	0	15	0	10
9.—Ditto—Hen . . . . .	1	0	0	15	0	10
10.—ORPINGTON (White)—Cock . . . . .	1	0	0	15	0	10
11.—Ditto—Hen . . . . .	1	0	0	15	0	10
12.—MINORCA—Cock . . . . .	1	0	0	15	0	10
13.—Ditto—Hen . . . . .	1	0	0	15	0	10
14.—RHODE ISLAND (Red) (Cock or Hen . . . . .	1	0	0	15	0	10
15.—SUSSEX—Cock . . . . .	1	0	0	15	0	10
16.—Ditto—Hen . . . . .	1	0	0	15	0	10
17.—DORKING (Any variety)—Cock . . . . .	1	0	0	15	0	10
18.—Ditto—Hen . . . . .	1	0	0	15	0	10
19.—FAVEROLLES—Cock . . . . .	1	0	0	15	0	10
20.—Ditto—Hen . . . . .	1	0	0	15	0	10
21.—LANGSHAN—Cock . . . . .	1	0	0	15	0	10
22.—Ditto—Hen . . . . .	1	0	0	15	0	10
23.—WYANDOTTE—(Silver or Gold Laced)—Cock . . . . .	1	0	0	15	0	10
24.—Ditto—Hen . . . . .	1	0	0	15	0	10
25.—Ditto (White)—Cock . . . . .	1	0	0	15	0	10
26.—Ditto—Hen . . . . .	1	0	0	15	0	10
27.—Ditto—(Black)—Cock . . . . .	1	0	0	15	0	10
28.—Ditto—Hen . . . . .	1	0	0	15	0	10
29.—Ditto—(Any other variety)—Cock . . . . .	1	0	0	15	0	10
30.—Ditto—Hen . . . . .	1	0	0	15	0	10
31.—LEGHORN (White)—Cock . . . . .	1	0	0	15	0	10
32.—Ditto—Hen . . . . .	1	0	0	15	0	10
33.—Ditto—(Any other variety)—Cock . . . . .	1	0	0	15	0	10
34.—Ditto—Hen . . . . .	1	0	0	15	0	10
35.—HAMBURG (Black)—Cock . . . . .	1	0	0	15	0	10
36.—Ditto—Hen . . . . .	1	0	0	15	0	10
37.—Ditto (Any other variety)—Cock . . . . .	1	0	0	15	0	10
38.—Ditto—Hen . . . . .	1	0	0	15	0	10
39.—OLD ENGLISH GAME (Black Red)—Cock . . . . .	1	0	0	15	0	10
40.—Ditto—Hen . . . . .	1	0	0	15	0	10
41.—Ditto (Any other variety)—Cock . . . . .	1	0	0	15	0	10
42.—Ditto—Hen . . . . .	1	0	0	15	0	10

	First Prize	Second Prize.	Third Prize.
	£ s.	£ s.	£ s.
<b>POULTRY—continued.</b>			
<b>CLASS</b>			
43.—INDIAN GAME—Cock . . . . .	1 0	0 15	0 10
44.—Ditto—Hen . . . . .	1 0	0 15	0 10
45.—FRENCH (excluding Faverolles)—Cock . . . . .	1 0	0 15	0 10
46.—Ditto—Hen . . . . .	1 0	0 15	0 10
47.—ANY OTHER DISTINCT BREED (not previously mentioned)—Cock . . . . .	1 0	0 15	0 10
48.—Ditto—Hen . . . . .	1 0	0 15	0 10
49.—Cock and Hen, of any pure breed, best mated to produce Table Poultry . . . . .	1 0	0 15	0 10
<b>SELLING CLASSES.</b>			
50.—ANY DISTINCT BREED—Cock or Cockerel ( <i>price not to exceed £1 1s.</i> ) . . . . .	1 0	0 15	0 10
51.—ANY DISTINCT BREED—Hen or Pullet ( <i>price not to exceed £1 1s.</i> ) . . . . .	1 0	0 15	0 10
<b>CHICKENS OF 1913.</b>			
52.—COCHIN, BRAHMA, PLYMOUTH ROCK, ORPINGTON, LANGSHAN, SUSSEX or DORKING — Cockerel hatched in 1913 . . . . .	1 0	0 15	0 10
53.—Ditto—Pullet—ditto . . . . .	1 0	0 15	0 10
54.—MINORCA, WYANDOTTE, LEGHORN, HAMBURG, FAVEROLLES or FRENCH — Cockerel hatched in 1913 . . . . .	1 0	0 15	0 10
55.—Ditto—Pullet—ditto . . . . .	1 0	0 15	0 10
56.—GAME, MALAY or any other Distinct Breed not previously mentioned—Cockerel . . . . .	1 0	0 15	0 10
57.—Ditto—Pullet—ditto . . . . .	1 0	0 15	0 10
<b>LIVE TABLE POULTRY.</b>			
58.—Pair of Cockerels of any Pure Breed, hatched in 1913 . . . . .	1 0	0 15	0 10
59.—Ditto—Pullets—ditto, ditto . . . . .	1 0	0 15	0 10
60.—Pair of Cross-Bred Cockerels, hatched in 1913 . . . . .	1 0	0 15	0 10
61.—Ditto—Pullets— ditto . . . . .	1 0	0 15	0 10
<b>SPECIAL PRIZES.</b>			
(Offered by the Poultry Club, under conditions stated in year book of Club.)			
Challenge Cups value \$10 10s. each.			
A.—For the best Cook or Cockerel in the Poultry Classes, the property of a Member of the Poultry Club.			
B.—Ditto—Hen or Pullet, ditto			



POULTRY—*continued.*

## SPECIAL PRIZES.

Challenge Cups value £5 5s. each.

C.—For the best Orpington, the property of a Member of the Poultry Club.

D.—Ditto—Wyandotte, ditto

E.—Ditto—Leghorn, ditto

F.—Ditto—Plymouth Rock, ditto

G.—Ditto—Minorca, ditto

H.—Ditto—Langshan, ditto

I.—Ditto—Sussex, ditto

A Gold Medal for best Cock in the Poultry Classes, the Property of a Member of the Poultry Club.

Ditto—Hen, ditto

Ditto—Cockerel, ditto

Ditto—Pullet, ditto

A Silver Challenge Cup, value £10 10s., for the best Bird exhibited in the Poultry Section, the property of a Member of the Poultry Club.

## DUCKS, GEESE &amp; TURKEYS.

## CLASS

62.—DRAKE or DUCK (Aylesbury)	. . . . .	1 0	0 15	0 10
63.—" " (Rouen)	. . . . .	1 0	0 15	0 10
64.—" " (Pekin)	. . . . .	1 0	0 15	0 10
65.—GANDER or GOOSE	. . . . .	1 0	0 15	0 10
66.—TURKEY—Cock or Hen	. . . . .	1 0	0 15	0 10

## DEAD TABLE POULTRY.

*(To be forwarded killed and plucked.)*

67.—Pair of Cockerels of 1913 of any Pure Breed	. . . . .	1 0	0 15	0 10
68.—Ditto—Pullets—ditto	. . . . .	1 0	0 15	0 10
69.—Pair of Cross-Bred Cockerels of 1913	. . . . .	1 0	0 15	0 10
70.—Ditto—Pullets—ditto	. . . . .	1 0	0 15	0 10
71.—Pair of Ducklings of 1913	. . . . .	1 0	0 15	0 10

## POULTRY.

(Under Poultry Club Rules.)

## CONDITIONS AND REGULATIONS.

## CHARGES, &amp;c.

1. Exhibitors may make an unlimited number of Entries on payment of fees as follows :—

MEMBERS.		NON-MEMBERS.	
s.	d.	s.	d.
2	0	3	0

The above fees include coops, food, and attendance.

N.B.—The above fees *must* be sent with the entries, or no notice will be taken of the latter.

2. The privilege of entering at Members' fees is strictly limited to Members of the Bath and West Society, or of the Royal Cornwall Agricultural Association elected on or before January 28, 1913, and subscribing not less than £1 annually.

3. All entries must be made on the printed forms to be obtained of the Secretary (THOS. F. PLOWMAN, 3, Pierrepont Street, Bath), and such forms must be correctly filled up and returned to the Secretary, together with all fees due on or before May 2. Exhibitors are requested to carefully examine the List of Prizes and Conditions, as the Society cannot be responsible for any errors made by Exhibitors in the entry forms, and birds entered in a wrong class will be necessarily excluded from competition. No alterations can be made in entry forms after they have been received by the Secretary.

4. The Council reserve the right to refuse the entries of any person.

5. Exhibitors must state the price and breed of their birds on their entry forms.

## SHOW YARD.

6. All birds must be in the Show Yard by 6 p.m. on *Monday, May 26*, and no bird can be removed before 7 p.m. on *Saturday, May 31*. Any Exhibitors who send for their birds must do so between 7 and 8 p.m. on that day.

7. All carriage must be prepaid to Truro Railway Station, otherwise the birds will not be received at the Exhibition; but they will be conveyed free of expense from the Station to the Show Yard and back.

8. No Exhibitor or Servant will be allowed into the tent until the birds have been judged.

9. The Poultry Tent will not be open to the public until 2 o'clock on the first day of the Exhibition.

10. A Non-Transferable Admission Ticket for the Exhibition will be sent to each Exhibitor whose entry fees amount to £1 and upwards.

## TABLE POULTRY.

11. In these Classes (58 to 61 and 67 to 71) quality for the table will be considered before mere weight. The date of hatching must be given, and, in the case of cross-bred birds, the breeds of the parents.

12. In Classes 67 to 71 the Birds must be sent killed and plucked. They will be withdrawn from exhibition when considered necessary, and, if unsold, will be returned to Exhibitors after 6 p.m. on *Thursday, May 29*. Exhibitors are recommended to put a reasonable price upon their exhibits in these Classes so as to promote the sale of them.

## SALES.

13. All birds may be claimed at the price put upon them, any time after 4 o'clock on *Tuesday, May 27*, and a sale *must take place* if the price stated be paid to the

Clerk in the Poultry Office at the time of claiming. *No alteration can be made in the prices stated on the entry forms* and in the Catalogue until after Thursday, May 29, when the price may be reduced on payment to the Stewards of one shilling per pen on each alteration. Birds must be *sold in pens*, and the price stated must include the basket. A charge of 10 per cent. will be made for all birds sold. The persons who have the management of the sales cannot take charge of birds which are disposed of privately.

#### AWARDS.

14. No second prize will be given in any of the Classes unless there are three entries, and no third prize unless there are six entries.

#### DISQUALIFICATION.

15. The Judges are empowered to withhold a prize or prizes where birds are not considered of sufficient merit, or in the Chicken Classes where they consider them over age, and are instructed to disqualify any that have been clipped, drawn, trimmed, marked, or dyed. In the Game Classes birds can be shown either dubbed or undubbed.

16. An Exhibitor detected in a false statement as to the age, &c., of any bird, or in any other practice calculated to deceive or mislead the Judges or Stewards, shall forfeit all or any prizes awarded to him or her at the Show, and will be disqualified from competing at any future Show of the Society, and the Council shall have the power to inform other Societies of their action in this respect.

17. No person who shall have been shown to the satisfaction of the Council to have been excluded from exhibiting for Prizes at the exhibition of any other Society in consequence of having attempted to obtain a Prize by giving a false Certificate, or by other unfair means, and no person who is under exclusion from any Breed Society for fraudulent practices, shall be allowed to exhibit at this or any other meeting of the Society.

18. Unhealthy birds will not be exhibited, but will be immediately returned to their owners, and the fees will be forfeited.

#### PROTESTS.

19. In order to check frivolous and vexatious protests, no protest will be entertained unless accompanied by a deposit of £1 in each case; and in case the protest is not substantiated the deposit may be forfeited to the funds of the Society. All protests must be made before 12 o'clock (noon) on Wednesday, May 28.

#### FORFEITS.

20. Persons entering birds and failing to send the same to the Exhibition will forfeit the entrance fee for each pen so left vacant.

#### GENERAL.

21. All birds shown must be *bona fide* the property of the Exhibitor.

22. For each pen entered the Exhibitor will receive a label, on the reverse side of which he must legibly write his name and address for the return journey.

23. All eggs laid at the Exhibition will be destroyed.

24. The Stewards pledge themselves to take every care of the birds exhibited, but neither they nor the Society will, in any case, be responsible for any accident, loss, or damage, from whatever cause arising, the exhibits being entered at the sole risk of the Exhibitors, and Exhibitors will be required to hold the Society harmless in the event of loss.

25. In case of death of any bird during the Exhibition, it will be sent back for the inspection of the Exhibitor.

26. The following are the conditions under which the Challenge Cups are offered by the Poultry Club:—

*There shall be no limit as to how many times these Cups are competed for*

*in any one year ; they may be competed for at any number of Shows on one and the same day, but in every case the winners shall receive a suitable Certificate recording the win, and the names shall be engraved on the cup or cups. A cup that has been won 8 times by the same Exhibitor, who must be a Member of the Poultry Club, shall become his absolute property.*

27. The Poultry Department is subject to the Rules and Regulations of the Society, and its Officers.

*\*.\* The use of properly constructed Poultry Baskets will facilitate the safe and speedy conveyance of the birds to and from the Exhibition.*

*The Society cannot, under any circumstances, undertake to send telegrams to Exhibitors as to Judges' awards.*

*Applications for Catalogues (price 1s. each) and printed lists of awards should be made only to the Publishers, Messrs. WILLIAM LEWIS AND SON, Herald Office, Bath.*

By order of the Council,

3, Pierrepont Street, Bath.

**THOMAS F. PLOWMAN**, Secretary.

TELEGRAPHIC ADDRESS:—"FLOWMAN, BATH."

TELEPHONE No 610.

# FINANCIAL STATEMENTS

FOR

1912

*WITH ITEMS OF 1911 FOR COMPARISON.*

	PAGES
SUMMARY OF THE CASH ACCOUNT ... ..	cxlii-cxliii
DETAILED CASH ACCOUNT ... ..	cxliv-clv
ASSETS AND LIABILITIES ... ..	clvi
STATEMENT SHOWING RESULT OF SHOW ... ..	clvii

# The Bath and West and

## SUMMARY OF THE CASH ACCOUNT

Dr.

WITH COMPARATIVE

Page of accompany- ing Cash Account.	RECEIPTS.	1912. BATH.			1911. CARDIFF.		
		£	s.	d.	£	s.	d.
	<b>General:—</b>						
cxliv	Dividends and Interest . . . . .	625	2	4		596	15 11
cxliv	Miscellaneous . . . . .	3	19	7			
cxliv	Subscriptions from Members . . . . .	1,050	5	0		1,035	7 0
cxliv	Life Members . . . . .					40	0 0
cxliv	Journal . . . . .	40	11	9		40	14 5
					1,719	18	8
						1,712	17 4
	<b>Show:—</b>						
cxliv	Implements . . . . .	1,914	18	11		2,006	18 8
cxlv	Horses . . . . .		754	9 0		813	14 6
cxlv	Cattle, Sheep and Pigs . . . . .		1,082	7 0		908	2 0
cxlvi	Catalogues, &c. . . . .		104	19 5		105	19 8
		1,921	15	5		1,827	16 2
cxlvi	Poultry . . . . .	88	12	8		72	14 0
cxlviii	Shoeing . . . . .	31	0	0		69	15 0
cxlviii	Timbering and Splicing . . . . .					15	5 0
cxlviii	Art Manufactures . . . . .	107	2	0		81	10 0
cl	Cheese and Butter . . . . .	120	13	3		87	9 6
cl	Working Dairy . . . . .	133	15	3		193	2 9
cl	Cider . . . . .	12	17	6		19	15 0
clii	Admissions . . . . .	3,901	3	6		3,965	4 0
clii	<b>Unapportionable:—</b>						
	Contract Premiums . . . . .		560	15 0		560	10 0
	Sales and Fittings . . . . .		629	2 8		414	5 2
		1,189	17	8		974	15 2
clii	Subscription from Truro for 1913 Show . . . . .	800	0	0		800	0 0
					9,921	16	2
						10,114	5 3
					11,641	14	10
						11,827	2 7
cliv	Balance in Bank, January 1st . . . . .				1,320	17	2
		£	12,968	12 0	£	11,827	2 7

**Southern Counties Society.****FOR THE YEAR ENDING DEC. 31st, 1912.****STATEMENT FOR 1911.****CR.**

Page of accompany- ing Cash Account.	PAYMENTS.	1912. BATH.		1911. CARDIFF.	
		£ s. d.	£ s. d.	£ s. d.	
	<b>General :—</b>				
cxlv	Salaries . . . . .	1,100 0 0		1,110 10 0	
cxlv	Printing, Postage, Stationery, &c. . . . .	230 14 9		244 12 4	
cxlv	Journal . . . . .	420 10 11		418 17 8	
			1,751 5 8	1,774 0 0	
	<b>Show :—</b>				
cxlv	Implements . . . . .	651 6 11		641 8 9	
		£ s. d.			
cxlvii	Horses . . . . .	1,181 0 3		1,071 13 4	
cxlviii	Cattle, Sheep, and Pigs . . . . .	2,439 9 8		2,359 7 8	
cxlviii	Fodder, &c. . . . .	733 11 3		570 16 11	
		4,354 1 2		4,001 17 11	
cxlvii	Poultry . . . . .	254 8 0		232 18 6	
cxlix	Shoeing . . . . .	121 0 11		149 1 3	
cxlix	Timbering and Splicing . . . . .			22 14 1	
cxlix	Art Manufactures . . . . .	59 9 5		61 4 5	
cxlix	Nature Study . . . . .	42 8 10		36 9 11	
cxlix	Forestry . . . . .	66 11 11		62 12 10	
cxlix	Music . . . . .	240 19 6		165 11 9	
cxlix	Horticulture . . . . .	151 18 1		146 7 1	
cli	Bees . . . . .			10 0 0	
cli	Cheese and Butter . . . . .	249 4 9		236 1 4	
cli	Working Dairy . . . . .	433 16 2		465 6 5	
cli	Cider . . . . .	75 13 4		97 16 9	
cliii	Public Announcements . . . . .	450 9 8		442 10 2	
cliii	Unapportionable :—				
	Erection of Offices, &c. . . . .	1,144 11 9		1,133 2 3	
	Carriage of Plant . . . . .	107 19 3		87 4 1	
	Stand Fittings . . . . .	281 12 0		211 1 11	
	Police . . . . .	91 0 0		92 15 0	
	Miscellaneous . . . . .	327 2 9		303 7 10	
		1,952 5 9		1,827 11 1	
			9,103 14 5	8,599 12 3	
clv	<b>Experiments :—</b>		125 0 0	103 8 0	
			10,980 0 1	10,477 0 3	
clv	Investments . . . . .	1,576 2 6		29 5 2	
clv	Balance due to Bank, January 1st . . . . .			1,320 17 2	
clv	Balance in Bank, Dec. 31st. . . . .		406 9 5		
		£ 12,962 12 0		11,827 2 7	

**January 16th, 1913.**

Audited and found correct,

**F. CLIFFORD GOODMAN, F.C.A.,***Auditor.***Passed by Council,****January 28th, 1913.****THOS. F. FLOWMAN,***Secretary.*

## The Bath and West and

Dr. CASH ACCOUNT FOR THE YEAR ENDING DEC. 31st,

RECEIPTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
<b>DIVIDENDS AND INTEREST :—</b>						
Consols . . . . .	137	10	4			137 10 4
New Zealand Stock . . . . .	51	13	6			51 13 6
India Stock . . . . .	212	19	4			212 19 4
Queensland Stock . . . . .	103	12	8			103 12 8
New South Wales Stock . . . . .	66	0	2			66 0 2
Canadian Pacific Stock . . . . .	23	5	0			
Interest on Deposit . . . . .	25	1	4			24 19 11
				625	2	4
<b>MISCELLANEOUS :—</b>						596 15 11
Cancelled Cheques, &c. . . . .				3	19	7
<b>SUBSCRIPTIONS FROM MEMBERS :—</b>						
Arrears . . . . .	17	14	0			81 16 0
Governors . . . . .	171	15	0			179 7 0
Subscribers of £1 and upwards . . . . .	858	6	0			816 4 0
Ditto of 10s. . . . .	7	10	0			8 0 0
				1,050	5	0
						1,035 7 0
<b>LIFE COMPOSITIONS . . . . .</b>						40 0 0
<b>JOURNAL :—</b>						
Sales . . . . .	9	13	7			6 17 9
Advertisements . . . . .	30	18	2			83 16 8
				40	11	9
						40 14 5
<b>IMPLEMENTS :—</b>						
<b>Fees for Space :—</b>						
Machinery-in-Motion Shedding . . . . .	455	15	0			520 15 0
Ordinary . . . . .	341	10	0			386 18 0
Miscellaneous . . . . .	165	0	0			218 10 0
Boarded . . . . .	412	10	0			395 12 6
Seed . . . . .	32	10	0			27 0 0
Uncovered Ground . . . . .	339	3	5			328 1 6
Catalogue Fees . . . . .	90	0	6			97 11 8
Entry Fees . . . . .	78	10	0			84 10 0
				1,014	18	11
						2,006 18 8
<b>Carried forward . . . . .</b>	£	3,634	17 7			



**Southern Counties Society.****1912, WITH COMPARATIVE STATEMENT FOR 1911.****CR.**

PAYMENTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
<b>SALARIES:—</b>						
Secretary (including Clerks, Show Expenses, &c.) . . . . .	1,050	0	0	1,050	0	0
Auditor . . . . .	20	0	0	20	0	0
Consulting Chemist . . . . .	30	0	0	30	0	0
„ Botanist . . . . .				10	10	0
				1,100	0	0
<b>MISCELLANEOUS:—</b>						
Printing . . . . .	12	10	9	29	3	11
Stationery and Finance Books . . . . .	41	7	10	36	14	7
Postages, Telegrams, Cheque and Receipt Stamps . . . . .	63	18	4	65	7	8
Ground Rent and Rates . . . . .	21	5	0	21	5	0
Income and Property Tax . . . . .	2	3	9	2	3	9
Travelling Expenses . . . . .	23	7	8	25	6	11
Carriage of Goods . . . . .	7	11	3	10	19	3
Directories and Reference Books . . . . .	0	12	7	0	19	6
Subscriptions . . . . .	6	6	0	6	6	0
Repairs and Fittings . . . . .	9	15	6	11	1	1
Hire of London Rooms for Meetings . . . . .	3	3	0	4	4	0
Fuel and Light . . . . .	10	6	5	8	5	2
Finance Committee's Expenses . . . . .	3	1	6	6	7	0
Telephone . . . . .	8	16	2	8	1	10
Presentation . . . . .	16	9	0			
Transfer of Stock to New Trustees, &c. . . . .				8	6	8
				230	14	9
<b>JOURNAL:—</b>						
Editor . . . . .	100	0	0	100	0	0
Associate Editor . . . . .	100	0	0	100	0	0
Printing and Binding . . . . .	148	16	3	147	11	7
Plans and Blocks . . . . .	11	10	6	6	7	0
Journal Distribution . . . . .	19	4	10	18	13	7
Postages, Stationery, Reference Books, &c. . . . .	4	14	4	4	4	0
Payments to Authors . . . . .	36	5	0	42	1	6
				420	10	11
<b>IMPLEMENTS:—</b>						
Shedding . . . . .	568	7	8	538	18	5
Stewards and Assistants . . . . .	54	1	8	67	10	2
Printing, Stationery, &c. . . . .	25	1	7	32	2	8
Fees returned . . . . .	3	16	0	2	17	6
				651	6	11
Carried forward . . . . .	£			2,402	12	7

Dr.

CASH ACCOUNT—*continued.*

RECEIPTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
Brought forward . . . . .				3,634	17	7
<b>HORSES, CATTLE, SHEEP AND PIGS :—</b>						
£ s. d.						
Horses :—Entry Fees . . . . .	258	0	0			231 10 0
Fines . . . . .	4	10	0			3 0 0
Grand Stand Admissions . . . . .	333	19	0			417 4 6
Special Prizes . . . . .	158	0	0			162 0 0
	754	9	0			813 14 6
<b>Cattle, Sheep and Pigs :—</b>						
Entry Fees . . . . .	580	0	0			529 2 0
Fines . . . . .	30	0	0			33 0 0
Special Prizes . . . . .	356	10	0			346 0 0
Catalogues, Manure and Fodder . . . . .	104	19	5			105 19 8
<b>Dairy Herds :—</b>						
Entry Fees . . . . .	14	10	0			
Special Prizes . . . . .	81	7	0			
	95	17	0			
	1,062	7	0			908 2 0
				1,021	15	5
				1,827	16	2
<b>POULTRY :—</b>						
Entry Fees . . . . .	87	4	0			71 19 0
Commission on Sales . . . . .	1	8	8			0 15 0
				88	12	8
						72 14 0
Carried forward . . . . .	£	5,645	5 9			

CASH ACCOUNT—*continued.*

CR.

PAYMENTS.	1912. BATH.		1911. CARDIFF.	
	£	s. d.	£	s. d.
Brought forward .			2,402	12 7
<b>HORSES, CATTLE, SHEEP AND PIGS:—</b>				
Horses—Prizes . . . . .	£	s. d.		
Shedding & Grand Stand . . . . .	798	2 0	804	18 0
Stewards and Assistants . . . . .	302	13 2	176	2 0
Judges . . . . .	43	10 9	49	5 1
Fees returned . . . . .	35	4 4	40	18 3
	1	10 0	0	10 0
Cattle—Prizes £1,088 7 0			1,181	0 3
Less Deferred 15 0 0				
			1,071	13 4
	1,013	7 0	1,148	12 0
Sheep—Prizes . . . . .	571	0 0	5	0 0
Pigs—Prizes . . . . .	206	4 0		
			1,143	12 0
			474	3 0
Shedding and Canvas . . . . .	321	11 3	195	16 0
Stewards and Assistants . . . . .	35	12 0		
Judges . . . . .	150	3 2	349	11 19
Fees Returned . . . . .	1	10 0	37	13 10
			153	11 0
			5	0 0
<b>Dairy Herds:—</b>				
Prizes . . . . .	60	0 0		
Judge . . . . .	11	2 3		
Printing, Stationery, &c. 5 10 0				
	76	12 3		
			2,444	19 8
Buildings, etc. . . . .	378	1 1	2,359	7 8
Fodder and Insurance . . . . .	247	12 1		
Fodder Assistants . . . . .	7	10 0	260	17 9
Veterinary Inspector . . . . .	26	18 6	1'2	18 0
Rosettes . . . . .	12	15 10	7	9 10
Printing and Stationery . . . . .	40	8 3	26	12 6
Refreshments for Judges . . . . .	14	15 6	12	4 4
			76	16 7
			13	17 11
	728	1 3		
			4,354	1 2
<b>POULTRY:—</b>			4,001	17 11
Marquee, Staging and Sheds . . . . .	48	3 5		
Stewards and Assistants . . . . .	23	9 6	37	9 6
Judges . . . . .	13	10 0	24	6 7
Prizes . . . . .	156	1 0	14	6 0
Printing, Stationery, Cartage, &c. . . . .	13	4 1	146	16 1
			10	0 4
			254	8 0
			232	18 0
Carried forward .	£	7,011 1 9		

Dr.

CASH ACCOUNT—*continued.*

RECEIPTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
Brought forward . . . . .				5,845	5	8
SHOEING :—						
Entry Fees . . . . .				31	0	0
Local Prizes . . . . .						48 15 0
						21 0 0
						69 15 0
TIMBERING AND SPLICING :— . . . .						15 5 0
ART-MANUFACTURES :— . . . . .				107	2	0
						81 10 0
Carried forward . . . . .	£	5,783	7 8			

**CASH ACCOUNT—continued.****CR.**

PAYMENTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
Brought forward				7,011	1	9
<b>SHOEING :—</b>						
Prizes . . . . .	38	10	0		59	14 6
Judges . . . . .	9	1	0		11	0 0
Anvils, Forges, Coals, Horses, Printing, etc. . . . .	12	19	0		18	17 4
Shedding . . . . .	34	0	0		26	8 1
Steward and Assistants . . . . .	11	3	3		9	18 10
Fees returned . . . . .	15	7	8		23	2 6
				121	0	11
					149	1 3
<b>TIMBERING AND SPLICING :—</b>					22	14 1
<b>ART-MANUFACTURES :—</b>						
Labour and Fittings . . . . .	57	18	11		50	8 10
Steward and Assistants, Printing, etc. . . . .	1	10	6		5	7 7
Fees returned . . . . .					5	8 0
				59	9	5
<b>NATURE STUDY :—</b>						
Labour and Fittings . . . . .	35	11	8		22	17 11
Steward and Assistants . . . . .	5	0	2		6	4 0
Printing, Postage, etc. . . . .	1	17	0		7	8 0
				42	8	10
<b>FORESTRY :—</b>						
Labour and Fittings . . . . .	45	0	2		32	16 1
Steward and Assistants . . . . .	7	3	0		6	0 0
Printing, Postages, etc. . . . .	1	5	6		6	18 9
Prizes . . . . .	6	11	0		6	17 0
Judge and Demonstrator . . . . .	6	12	3		10	1 0
				66	11	11
<b>MUSIO :—</b>						
Bands and their Fares . . . . .	212	0	0		139	0 0
Steward and Assistants . . . . .	3	10	2		3	14 6
Erecting Band Stand, etc. . . . .	25	9	4		22	17 3
				240	19	6
<b>HORTICULTURE :—</b>						
Gratuities to Gardeners . . . . .	100	0	0		100	0 0
Erecting and Repairing Tent and Staging . . . . .	35	12	1		28	1 11
Steward and Assistants . . . . .	16	6	0		18	5 2
				151	18	1
Carried forward	£	7,698	10 5			

Dr.

## CASH ACCOUNT—continued.

RECEIPTS.	1912. BATH.		1911. CARDIFF.	
	£	s. d.	£	s. d.
Brought forward . . . . .			5,783	7 8
 CHEESE AND BUTTER :—				
Entry Fees . . . . .	65	13 0		52 9 6
Sales . . . . .	17	0 3		14 10 0
Special Prizes and Fines . . . . .	38	0 0		20 10 0
			120	13 3
 WORKING DAIRY :—				
Admissions . . . . .	4	17 9		8 10 6
	£	s. d.		
Entry Fees, Competitions . . . . .	44	12 6		6 15 0
" Appliances . . . . .	5	5 0		7 16 0
" Tests . . . . .	13	0 0		20 0 0
			62	17 6
				95 11 0
Sale Premium and Sundries . . . . .	40	0 0		35 6 3
Special Prizes . . . . .	26	0 0		53 15 0
			133	15 3
 CIDER :—				
Entry Fees and Fines . . . . .	10	17 6		12 5 0
Railway Company for Damage . . . . .	2	0 0		7 10 0
Special Prizes . . . . .				
			12	17 6
				19 15 0
Carried forward . . . . .	£	6,050 13 8		

CASH ACCOUNT—*continued.*

Cr.

PAYMENTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
Brought forward . . . . .				7,693	10	5
BEES . . . . .						10 0 0
CHEESE AND BUTTER :—						
Judges . . . . .	10	11	19		12	1 0
Prizes . . . . .	177	10	0		162	10 0
Stewards and Assistants . . . . .	8	10	2		0	0 6
Shedding . . . . .	44	4	9		43	8 6
Printing, Stationery, Carriage, &c. . . . .	3	8	0		7	1 4
Grass Table for Butter . . . . .	5	0	0		5	0 0
				249	4	9
WORKING DAIRY :—						
Stewards and Assistants . . . . .	33	12	2		46	19 6
Judges and Demonstrators . . . . .	87	8	10		73	17 7
Buildings . . . . .	187	17	10		167	1 1
Printing, Stationery, Postages and Insurance . . . . .	6	3	6		12	16 11
Utensils, Carriage, &c. . . . .	31	9	5		41	3 11
Prizes . . . . .	70	5	0		102	10 0
Coal, Salt, Ice, &c. . . . .	5	19	3		7	13 1
Consulting Chemist for Analyses . . . . .	11	0	2		8	4 4
Cows for Milking . . . . .					5	0 0
				433	16	2
CIDER :—						
Shedding and Fittings . . . . .	20	14	9		20	1 7
Steward and Assistants . . . . .	12	4	4		19	8 4
Judge . . . . .	5	8	9		5	18 0
Prizes . . . . .	20	0	0		27	16 0
Printing, &c. . . . .	1	7	6		5	8 10
Analyses, Carriage, &c. . . . .	13	18	0		19	4 0
				73	13	4
Carried forward . . . . .	£	8,452	4 8			

DR.

CASH ACCOUNT—*continued.*

RECEIPTS.	1912. BATH.		1911. CARDIFF.	
	£	s. d.	£	s. d.
Brought forward			6,050	13 8
ADMISSIONS TO SHOW-YARD:—				
Admissions at 2s. 6d. . . . .	1,571	10 0	1,910	12 6
"    " 1s. . . . .	1,868	14 0	1,920	13 0
"    " 6d. . . . .	112	12 0	73	11 0
Season Tickets, etc. . . . .	48	7 6	60	7 6
			3,801	3 6
			3,965	4 0
SHOW (UNAPPORTIONABLE):—				
Sales and Fittings . . . . .	580	3 8	414	5 2
Contract Premiums . . . . .	580	15 0	560	10 0
Sale of Permanent Buildings . . . . .	93	19 0		
			1,139	17 8
			974	15 2
SUBSCRIPTIONS FROM TOWNS:—				
Truro, for 1913 Show . . . . .			800	0 0
			800	0 0
Carried forward	£	11,641 14 10		



**CASH ACCOUNT—continued.****CR.**

PAYMENTS.	1912. BATH.			1911. CARDIFF.		
	£	s.	d.	£	s.	d.
Brought forward .				8,452	4	8
<b>PUBLIC ANNOUNCEMENTS:—</b>						
Advertising . . . . .	201	18	9			209 12 11
Billposting. . . . .	133	15	0			123 8 1
Railway Placards . . . . .	65	5	0			62 5 0
Printing . . . . .	49	10	11			47 4 2
				450	9	8
						442 10 2
<b>SHOW (UNAPPORTIONABLE):—</b>						
Official Buildings, &c. . . . .	969	8	8			961 1 4
Hoarding . . . . .	235	3	1			172 0 11
Carriage of Plant . . . . .	107	19	3			87 4 1
Works Assistant. . . . .	7	14	0			7 14 6
Stand Fittings . . . . .	231	12	0			211 1 11
Insurance . . . . .	12	8	3			5 11 6
Furnishing Official Buildings . . . . .	23	12	3			24 6 2
Mess Room, Allotment Expenses, &c. . . . .	13	18	0			34 2 8
Gatekeepers, Yardmen, Messengers, &c. . . . .	80	5	1			95 14 10
Stewards of Finance and Treasurer . . . . .	24	15	10			24 10 6
Finance Office and Treasurer's Clerks . . . . .	34	13	0			34 19 0
Police . . . . .	91	0	0			92 15 0
Badges, &c. . . . .	2	19	4			5 7 0
Catalogues for Press and Officials . . . . .	7	18	6			7 3 0
Purchase of Plant . . . . .	40	7	3			20 1 7
Printing, Stationery, &c. . . . .	24	9	2			37 10 7
Extension of Telegraph Wires . . . . .	9	6	3			6 6 6
Bath Abbey Organ Fund . . . . .	21	0	0			
Sheep Dog Demonstrations . . . . .	13	15	10			
				1,952	5	9
						1,827 11 1
<b>Carried forward .</b>	<b>£</b>	<b>10,855</b>	<b>0 1</b>			

**Dr.**

**CASH ACCOUNT—continued.**

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# Bath and West and Southern Counties Society.

## STATEMENT SHOWING FINANCIAL RESULT OF THE BATH (1912) SHOW.

Printed Financial State- ments.							
Page		£	s.	d.	£	s.	d.
cxlii	Show Receipts . . . . .				9,921	16	2
clii	Less by Sale of Permanent Buildings . . . . .				98	19	0
							9,822 17 2
cxliii	Show Payments . . . . .				9,103	14	5
clvi	Deferred Prizes . . . . .				15	0	0
					9,118	14	5
cliii	Less Show Plant purchased . . . . .	40	7	3			
	Less 10 per cent. for depreciation . . . . .	4	0	9			
					£ 36	6	6
							9,082 7 11
	Net profit . . . . .						£740 9 3

**Bath and West and Southern Counties Society,**  
 FOR THE  
*Encouragement of Agriculture, Arts, Manufactures and Commerce.*

## List of Members, 1913.

### PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

### PRESIDENT

FOR 1912-1913.

THE RIGHT HON. THE VISCOUNT FALMOUTH.

### TRUSTEES.

THE MOST HON. THE MARQUIS OF BATH.

SIR C. T. D. ACLAND, BART.

C. L. F. EDWARDS, Esq.

*Names thus (\*) distinguished are Governors.*

*Names thus (†) distinguished are Life Members.*

\* \* \* *Members are particularly requested to make the Secretary acquainted with any errors in the names of residences.*

Name.	Residence.	Sub- scriptions.
		£ s. d.
†*His Most Gracious Majesty the King . . . . .	Windsor Castle . . . . .	..
†Ackers, B. St. John . . . .	Huntley Manor, Huntley, near Gloucester . . . . .	..
Ackers, Chas. . . . .	Huntley Manor, Gloucester . . . .	1 0 0
Ackland, J. . . . .	Cutton Farm, Poltimore, Exeter . .	1 0 0
Acland, Alfred Dyke . . . .	. . . . .	1 0 0
†Acland, Rt. Hon. A. H. Dyke . . . . .	29, St. James Court, Buckingham Gate, London, S.W. . . . .	..
*Acland, Sir C. T. D., Bart.	Killerton, Exeter . . . . .	5 0 0
Acland, F. Dyke, M.P. . . .	Colby Hall, Askrigg, Yorks . . . .	1 0 0
Adams, E. C. . . . .	Brentwood, Combe Down, Bath . .	1 0 0
Adams, G. & Son . . . . .	Wadley House, Faringdon, Berks .	1 0 0
Adams, R. and H. (Ld.) . . .	10, Queen Square, Bristol . . . .	1 0 0
*Addington, Hon. G. . . . .	Upottery Manor, Honiton . . . .	2 0 0
Adeane, C. R. W. . . . .	Babraham, Cambridge . . . . .	1 0 0
†Aitken, G. H. . . . .	Longleat Estate Office, Warminster	..
Akers, E. . . . .	St. Fagans, Cardiff . . . . .	1 0 0

# Subscriptions.

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Name.	Residence.	Subscriptions.		
		£	s.	d.
Alexander, D. . . . .	5, High Street, Cardiff . . . . .	1	1	0
Alexander, H. G. . . . .	Dinas Powis, Cardiff . . . . .	1	1	0
Allen, A. . . . .	Stoney Stratton, Evercreech, Bath . . . . .	1	0	0
†Allen, James D. . . . .	Springfield House, Shepton Mallet . . . . .	..		
Allen, W. T. . . . .	West Bradley, Glastonbury . . . . .	1	0	0
Allin, Mrs. N. . . . .	Townsend Manor Farm, Over Wallop, Stockbridge . . . . .	1	0	0
Allix, C. I. L. . . . .	St. Germans, Cornwall . . . . .	1	0	0
Allsebrook, A. . . . .	Link Elm, Malvern Link . . . . .	1	1	0
Ames, E. . . . .	4, Barton Street, Bath . . . . .	1	0	0
Ames, F. . . . .	Hawford Lodge, Worcester . . . . .	1	0	0
Andrews, S. Fox . . . . .	Union Street, Bath . . . . .	1	0	0
Anglo-Continental Guano Works . . . . .	15, Leadenhall Street, London, E.C. . . . .	1	0	0
Anglo-Swiss Condensed Milk Company . . . . .	Chippenham . . . . .	1	0	0
†Ashcomb, Lord . . . . .	Denbies, Dorking . . . . .	..		
†Ashcroft, W. . . . .	13, The Waldrons, Croydon . . . . .	..		
Ashford, E. C., M.D. . . . .	The Moorlands, Bath . . . . .	1	0	0
*Astor, Waldorf . . . . .	Clivedon, Taplow, Bucks . . . . .	2	0	0
Augustein, J. R. . . . .	Holbrook House, Wincanton . . . . .	1	0	0
Aungier, J. . . . .	Lynwick, Rudgwick . . . . .	1	0	0
†Avebury, Lord . . . . .	High Elms, Hayes, Kent . . . . .	..		
†Aveling, Thomas L. . . . .	Rochester . . . . .	..		
Avon Manure Company (Ld.) . . . . .	St. Philip's Marsh, Bristol . . . . .	1	0	0
Awdry, C. . . . .	. . . . .	1	0	0
Badcock, H. Jefferies . . . . .	Broadlands, Taunton . . . . .	1	0	0
Bailey W. J. . . . .	Hinton Farm, Hinton Charterhouse, Bath . . . . .	1	0	0
Bailward, F. H. M. . . . .	Horsington, Wincanton . . . . .	1	1	0
Bainbridge, Mrs. R. C. . . . .	Elfordleigh, Plympton, South Devon . . . . .	1	0	0
Baker, G. E. Lloyd . . . . .	Hardwicke Court, nr. Gloucester . . . . .	1	0	0
†Baker, M. G. Lloyd . . . . .	The Cottage, Hardwicke, Glos. . . . .	..		
†Baker, L. J. . . . .	10, Ennismore Gardens, London, S.W. . . . .	..		
*Balston, W. E. . . . .	Barvin, Potters Bar, Herts . . . . .	2	0	0
Bamfords (Ltd.) . . . . .	Uttoxeter . . . . .	1	0	0
*Bannatyne, J. F. . . . .	Haldon, Exeter . . . . .	2	2	0
Barford and Perkins . . . . .	Peterborough . . . . .	1	0	0
Barham, G. T. . . . .	Sudbury Park, Wembley, Middlesex . . . . .	1	0	0
Baring, Hon. A. H. . . . .	The Grange, Alresford, Hants . . . . .	1	0	0
Barker, Sir J., Bart. . . . .	The Grange, Bishops Stortford . . . . .	1	0	0
*Barker-Hahlo, H. . . . .	Camerton Court, Bath . . . . .	2	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Barlow, Sir J. Emmott, Bart., M.P. . . . .	Torkington Lodge, Hazel Grove, near Stockport . . . . .	1	0	0
Barrett, Major William . . . . .	Moreden, North Curry, Taunton . . . . .	1	0	0
Barrett, Col. W. . . . .	Moreden, Taunton . . . . .	1	0	0
Barstow, J. J. J. . . . .	The Lodge, Weston-super-Mare . . . . .	1	1	0
Barton, D. J. . . . .	Quinceboro' Farm, Widemouth Bay, Bude, N. Cornwall . . . . .	0	10	0
Bassett, A. F. . . . .	Tehidy, Camborne, Cornwall . . . . .	1	0	0
*†Bath, Marquis of . . . . .	Longleat, Warminster . . . . .	..		
Bath and Somersetshire Dairy Co. . . . .	Bath . . . . .	1	0	0
Bath and Wells, The Bishop of . . . . .	The Palace, Wells . . . . .	1	1	0
Bath Gas Company . . . . .	Bath . . . . .	1	0	0
†Bathurst, C., M.P. . . . .	Lydney Park, Glos. . . . .	..		
Batten, Col. Cary . . . . .	Abbotsleigh, Bristol . . . . .	1	0	0
Batten-Pooll, R. H. . . . .	Road Manor, Bath . . . . .	1	0	0
†Battishill, W. J. . . . .	Spreyton, Exeter . . . . .	..		
†Baxendale, J. Noel . . . . .	Froxfield Green, Petersfield . . . . .	..		
Bayley, J. . . . .	Highlands, Ivybridge, S. Devon . . . . .	1	0	0
Beauchamp, E. B. . . . .	Trevince, Redruth . . . . .	1	0	0
Beauchamp, F. B. . . . .	Woodborough House, Peasedown St. John, Bath . . . . .	1	1	0
*Beaufort, Duke of . . . . .	Badminton, Chippenham . . . . .	2	2	0
Beaufoy, M. H. . . . .	Coombe Priory, Shaftesbury . . . . .	1	0	0
Benjafield, A. . . . .	Oak Vale, Hensbridge, Blandford . . . . .	1	0	0
Bennett, Brothers . . . . .	Journal Office, Salisbury . . . . .	1	1	0
Bennett, R. A. . . . .	Thornbury, Glos; . . . . .	1	0	0
Bennetts, J. M. . . . .	Killaganoon, St. Feock, Cornwall . . . . .	1	1	0
Bentall, Edward H. & Co. . . . .	Heybridge, Maldon, Essex . . . . .	1	0	0
Benyon, H. A. . . . .	Englefield House, Reading . . . . .	1	1	0
*Benyon, J. Herbert . . . . .	Englefield House, Reading . . . . .	5	0	0
Berryman, F. H. . . . .	Field House, Shepton Mallet . . . . .	1	1	0
Best, Capt. T. G. . . . .	Redrice, Andover . . . . .	1	0	0
†Best, Capt. W. . . . .	Vivod, Llangollen, North Wales . . . . .	..		
Beynon, J. W. . . . .	16, Mount Stuart Square, Cardiff . . . . .	1	1	0
Bigg, Thomas . . . . .	Leicester House, Great Dover Street, London, E.C. . . . .	1	0	0
Birmingham, C. . . . .	Holnicote, near Minehead . . . . .	0	10	0
†Blackburn, H. P. . . . .	Donhead Hall, Salisbury . . . . .	..		
Blackstone & Co. (Ltd.) . . . . .	Rutland Iron Works, Stamford . . . . .	1	1	0
Blake, M. Lock . . . . .	Bridge, S. Petherton . . . . .	1	0	0
Blathwayt, R. W. . . . .	Dyrham Park, Chippenham . . . . .	1	1	0
Blinman & Miles . . . . .	Farrington Gurney, Bristol . . . . .	1	0	0
Board, R. J. . . . .	Skinner, Board & Co., Rupert St., Bristol . . . . .	1	0	0
Bolden, Rev. C. . . . .	Preston Bissett, Buckingham . . . . .	1	0	0
Bolitho, R. F. . . . .	Ponsandane, Penzance . . . . .	1	1	0



# Subscriptions.

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Name.	Residence.	Sub- scriptions.
		£ s. d.
Bolitho, T. B. . . . .	Trewidden, Penzance . . . . .	1 0 0
Bolitho, T. R. . . . .	Trengwainton, Heamoor, Cornwall	1 1 0
Bond, E. . . . .	Hele, Cullompton . . . . .	1 0 0
Boscawen, Rev. A. T.. . . .	Ludgvan Rectory, Long Rock, R.S.O., Cornwall . . . . .	1 0 0
Boscawen, Hon. John R. de C. . . . .	Tregye, Perranwell, Cornwall . . . . .	1 1 0
Boscawen, Townshend E.	2, Old Burlington St., London, W.	1 0 0
Boteler, Col. F. D. . . . .	Lyndhurst, Hants . . . . .	1 1 0
Bouverie, Hon. Mrs. Pleydell	Coleshill House, Highworth . . . . .	1 1 0
Bouverie, H. P. . . . .	Brymore, Bridgwater . . . . .	1 0 0
†Bowen-Jones, Sir J., Bart.	Council House Court, Shrewsbury	..
†Bowerman, Alfred . . . . .	Capton, Williton, Somerset . . . . .	..
Boyle, M. . . . .	The Manor, Steeple Fitzpaine, Taunton . . . . .	1 0 0
Braby, F. & Co. . . . .	Ashton Gate Works, Bristol . . . . .	1 0 0
Bradford Thomas & Co. . . . .	Salford, Manchester . . . . .	1 0 0
Bradley, Miss E. . . . .	Greenway Court, Hollingbourne, Kent . . . . .	1 0 0
Brand, Admiral Hon. T. S.	Glynde, Lewes, Sussex . . . . .	1 0 0
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Cadogan, Earl, K.G.	Culford, Bury St. Edmunds	1	1	0
Cæsar, H. and J.	Knutsford, Cheshire	1	0	0
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Name.	Residence.	Subscriptions.		
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Finlay, Col. Alexander . .	Little Brickhill, Bletchley, Bucks .	1	0	0
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Fox, Dr. A. E. W. . . . .	Brislington House, near Bristol .	1	0	0
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†Fox, Robert . . . . .	Hinton Charterhouse, Bath . . .	1	1	0
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*Fry, J. F. . . . .	Union Street, Bristol . . . . .	2	0	0
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†Fuller, G. Pargiter . . .	Neston Park, Corsham . . . . .	..		



Name.	Residence.	Subscriptions.		
		£	s.	d.
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Garton, Jas.	Clarendon Park, Salisbury . . .	1	0	0
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*†Gibbs, G. A., M.P.	Tyntesfield, Bristol . . . . .	..		
†Gibbs, H. M.	Barrow Court, Flax Bourton, Bristol	..		
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Glantawe, Lord	The Grange, Swansea . . . . .	1	0	0
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Name.	Residence.	Sub- scriptions.		
		£	s.	d.
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Goodden, J. R. P. . . . .	Compton House, Sherborne . . .	1	0	0
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Goodrop, A. . . . .	Wick Farm, Combe Hay, Bath . .	1	0	0
Gordon, G. H. . . . .	The Barn House, Sherborne . . .	1	0	0
Gore-Langton, Hon. H. P. . .	Hatch Park, Taunton . . . . .	1	0	0
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†Gorringe, Hugh . . . . .	Kingston-by-Sea, Brighton . . .	..		
Gotto, C. L. . . . .	Passaford, Hatherleigh, N. Devon.	1	1	0
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†Greenall, Sir G., Bart.	Walton Hall, Warrington . . . .	..		
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Guise, Sir W. F., Bart.	Elmore Court, Gloucester . . . .	1	0	0
Gunning, A. E. . . . .	Fosse Farm, Combe Hay, Bath . .	1	0	0
Gunning Bros. . . . .	Park Farm, Newton St. Loe, Bath	1	0	0
Gunther, C. E. . . . .	Tongwood, Hawkhurst, Kent . . .	1	0	0
Guyon, Rev. H. C. . . . .	The Rectory, Lamyat, Bath . . .	1	0	0
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Name.	Residence.	Subscriptions.		
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Hancock, R. D.	Halae, Taunton	1	0	0
Harbottle, E.	Topsham	1	0	0
Harding, C.	Upton Grove, Tetbury	1	0	0
Harding, T. K.	Ashton Gifford House, Codford, Bath	1	0	0
Harding, R.	Fenswood Farm, Long Ashton, Bristol	1	0	0
Hardwick, E. A.	Kewstoke, Weston-super-Mare	1	0	0
Harpur, W.	Borough Engineer, Cardiff	1	0	0
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Harris, C. & T. (Ltd.).	Bacon Curers, Calne, Wilts	1	0	0
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Harrison, Miss	West Hay, Wroughton	1	0	0
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Haversham, Lord	Trevina, Tintagel, Cornwall	1	0	0
Haward, T. W.	The Cottage, Margam, Port Talbot	1	1	0
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*Heathcoat-Amory, Sir J. H., Bart.	Knightshayes Court, Tiverton, Devon	2	2	0
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Hepple, E. M.	Camerton, near Bath	1	0	0
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†Hewitt, G. Southby.	Day, Son & Hewitt, 22, Dorset Street, London, W.	..	..	..
Hibbard, J. M.	Garth, Batheaston, Bath	1	0	0
Hick, W. A.	Wayfield, Batheaston, Bath	1	0	0
Hicks, Mrs. R.	Treganhoe, Newbridge, R.S.O., Cornwall	1	0	0
Higgins, B.	Millhouse Farm, Chesterblade, Shepton Mallet	0	10	0
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Name.	Residence.	Subscriptions.		
		£	s.	d.
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Hill, H. . . . .	Paulton, near Bristol . . . .	1	1	0
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Hill, W. B. . . . .	Underhill Farm, Cannock Road, Wolverhampton . . . .	1	0	0
Hill, Capt. W. J. M. . .	Westwood House, West Bergholt, Essex . . . . .	1	0	0
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Hobbs, J. T. . . . .	Maisey Hampton, Fairford . . . .	1	0	0
Hobbs, R. W. . . . .	Kelmscott, Lechlade . . . . .	1	0	0
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Hosken, W. J. . . . .	Pulsack, Hayle, Cornwall . . . .	1	0	0
†Hoskins, R. J. . . . .	Beard Hill Farm, Shepton Mallet .	..		
Hoskyns, H. W. P. . . .	North Perrott Manor, Crewkerne, Somerset . . . . .	1	0	0
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Howard, J. and F. . . .	Britannia Works, Bedford . . . .	1	0	0
Hudson, E. V. . . . .	Wolseley Works, Witton, Birming- ham . . . . .	1	0	0
†Hughes, A. E. . . . .	Wintercott, Leominster . . . . .	..		
Humphries, Sidney . . .	Eastfield Lodge, Westbury-on- Trym, Bristol . . . . .	1	1	0
Hunter, Sir Charles, Bart., M.P. . . . .	1, West Eaton Place, London, S.W.	1	0	0

Name.	Residence.	Sub- scriptions.		
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†Hurle, J. C. . . . .	Brislington Hill, Bristol . . . . .	..		
Hurst and Son . . . . .	152, Houndsditch, London . . . . .	1	0	0
Hussey, J. W. . . . .	Bouverie House, Exeter . . . . .	1	0	0
†Hylton, Lord . . . . .	Charlton, near Radstock . . . . .	..		
Ibbotson, R. . . . .	The Hawthorns, Knowle, Warwick- shire . . . . .	1	0	0
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Imbert-Terry, H. M. . . . .	Strete Raleigh, Whimble . . . . .	1	0	0
Innes, G. P. Mitchell . . . . .	Craig-yr-Haul, Castleton, Cardiff . . . . .	1	0	0
International Harvester Co. (Limited) . . . . .	80, Finsbury Pavement, London, E.C. . . . .	1	0	0
*Irby, Hon. G. N. . . . .	Porthamel, Llanfair, P.G., Anglesey . . . . .	2	0	0
Ireland, A. C. . . . .	Brislington Hall, near Bristol . . . . .	1	1	0
Irvine, H. O. . . . .	Southerndown, Bridgend, Glam. . . . .	1	0	0
*Islington, Lord . . . . .	Hartham Park, Corsham . . . . .	2	0	0
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Jackman, Percy . . . . .	Pulteney Hotel, Bath . . . . .	1	0	0
Jackson, Sir H. M., Bart. . . . .	Llantillio Court, Abergavenny . . . . .	1	0	0
Jardine, E., M.P. . . . .	The Park, Nottingham . . . . .	1	1	0
Jarmain, T. M. . . . .	Haseley Iron Works, Tetsworth . . . . .	1	0	0
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Jenkins, Captain Vaughan . . . . .	St. Winifreds, Combe Down, Bath . . . . .	1	0	0
Jenkins, W. H. P. . . . .	Frenchay Park, Bristol . . . . .	1	0	0
Jennings, F. H. . . . .	Cockfield Hall, Bury St. Edmunds. . . . .	1	0	0
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Name.	Residence.	Sub- scriptions.
		£ s. d.
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Keel, W. W. . . . .	Stanton Drew, Somerset . . . .	1 0 0
Keeling, G. . . . .	North Hill Farm, Dunkerton, Bath	1 0 0
Keene, James B. & Co. . . . .	Journal Office, Bath . . . .	1 0 0
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Kell & Co. . . . .	Gloucester . . . . .	1 0 0
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Kennaway, Rt. Hon. Sir J. H., Bart., M.P. . . . .	Escot, Ottery St. Mary . . . .	1 1 0
Kennaway, J. . . . .	Escot, Ottery St. Mary . . . .	1 0 0
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Keynsham Stud Co. . . . .	Keynsham, near Bristol . . . .	1 0 0
*Keyser, C. E. . . . .	Aldermaston Court, Reading . . . .	2 0 0
Keyworth, J. and H. & Co. . . . .	35, Tarleton Street, Liverpool . . . .	1 0 0
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King and Sons, R. . . . .	Milsom Street, Bath . . . . .	1 1 0
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Kingscote, M. J. . . . .	Watermoor House, Cirencester . . . .	1 0 0
Kingscote, T., M.V.O. . . . .	Watermoor House, Cirencester . . . .	1 0 0
Kingwell, H. J. . . . .	Great Aish, South Brent, S. Devon	1 0 0
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Knox, E. . . . .	Kilmersdon, Bath . . . . .	1 1 0
†Kruise, W. . . . .	Park, Truro . . . . .	..
†Lake, C. . . . .	Oakley, Higham, Kent . . . . .	..
Lane, A. P. . . . .	Arthor's Club, St. James's, London	1 0 0
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Name.	Residence.	Subscriptions.		
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Le Feuvre, F. V. . . .	La Fosse, St. Peter's, Jersey . . . .	1	0	0
Legard, A. G. . . .	Brow Hill, Batheaston, Bath . . . .	1	0	0
Lennard, Sir H., Bart. . .	Wickham Court, West Wickham, Kent . . . .	1	0	0
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*Lethbridge, Sir Wroth P. C., Bart. . . .	Sandhill Park, near Taunton . . . .	2	0	0
Leverton, W. A. . . .	Columb John Farm, Stoke Canon, Exeter . . . .	1	0	0
Leverton, W. . . .	Woolleigh Barton, Beaford, North Devon . . . .	0	10	0
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†Ley, John Henry . . . .	Trehill, Exeter . . . .	..		
†Leyland, C. J. . . .	Haggerston Castle, Beal, Northumberland . . . .	..		
Liddell, C. O. . . .	Shirenewton Hall, Chepstow . . . .	1	1	0
Liddon, E., M.D. . . .	Silver Street House, Taunton . . . .	1	0	0
Linton, E. N. . . .	Westgate Chambers, Newport, Mon. . . .	1	0	0
Lipscomb, Godfrey . . .	Margam Park, Port Talbot . . . .	1	0	0
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Llewellyn, Col. Evan H. . .	The Court Farm, Langford, Bristol . . . .	1	1	0
Llewellyn, Llewellyn T. E. .	Hackwood, Basingstoke . . . .	1	1	0
*Llewellyn, Sir J. T. D., Bart. . . .	Penllergaer, Swansea . . . .	2	2	0
*Lloyd, Herbert . . . .	Plas Cilybebyll, Pontardawe, R.S.O., Glam. . . .	2	2	0
Lloyd, J. C. . . .	Dinas, Brecon . . . .	1	0	0
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*†Long, Rt. Hon. Walter H., M.P. . . .	Rood Ashton, Trowbridge . . . .	..		
Long, Col. William . . .	Woodlands, Congresbury, Somerset . . . .	1	0	0
Longrigg, G. E. . . .	Weston Lea, Bath . . . .	1	0	0
Lopes, Sir H. Y. Buller, Bart.	Maristow, Roborough, Devon . . . .	1	0	0
Loram Brothers . . . .	Cathedral Dairy, Exeter . . . .	1	1	0
Lovell, T. . . .	Bratton Court, Minehead, Somerset . . . .	1	0	0
Lovell, G. W. . . .	Tyndall Villa, Wells Road, Bath . . . .	1	0	0

Name.	Residence.	Subscriptions.		
		£	s.	d.
Lucas, Lord . . . .	Wrest Park, Ampthill . . . .	1	0	0
Ludlow, Lord . . . .	Hardenhuish, Chippenham . . . .	1	0	0
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McCalmont, D. H. B. . . . .	Crockford's Hall, Newmarket . . . .	1	1	0
Macdonald, K. . . . .	5, Sion Hill, Bath . . . . .	1	0	0
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Major, H. J. and C. (Ltd.) . . . .	Bridgwater . . . . .	1	0	0
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†Mansell, A. E. . . . .	Mount Vernon, Melton Mowbray, Tasmania . . . . .	..		
Marcus, M. . . . .	High Trees, Redhill, Surrey . . . .	1	0	0
Marden, E. D. . . . .	Marston House, Marston Magna, Bath . . . . .	1	0	0
Marfell, R. H. . . . .	Great House Farm, Llangeview, Usk . . . .	1	0	0
Marken, E. R. . . . .	Henstaff Court, Pontyclun, R.S.O.. . . .	1	1	0
Marker, Richard . . . . .	Combe, near Honiton . . . . .	1	0	0
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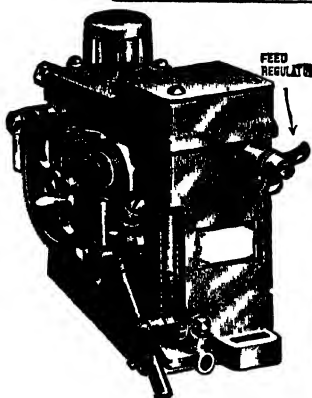
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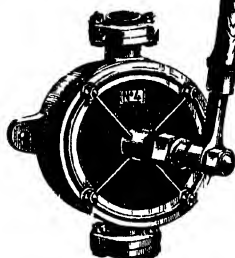
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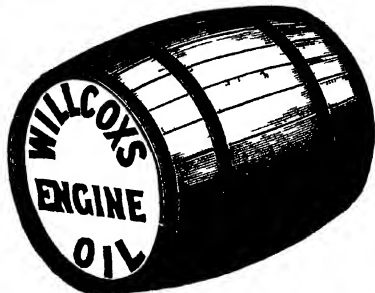
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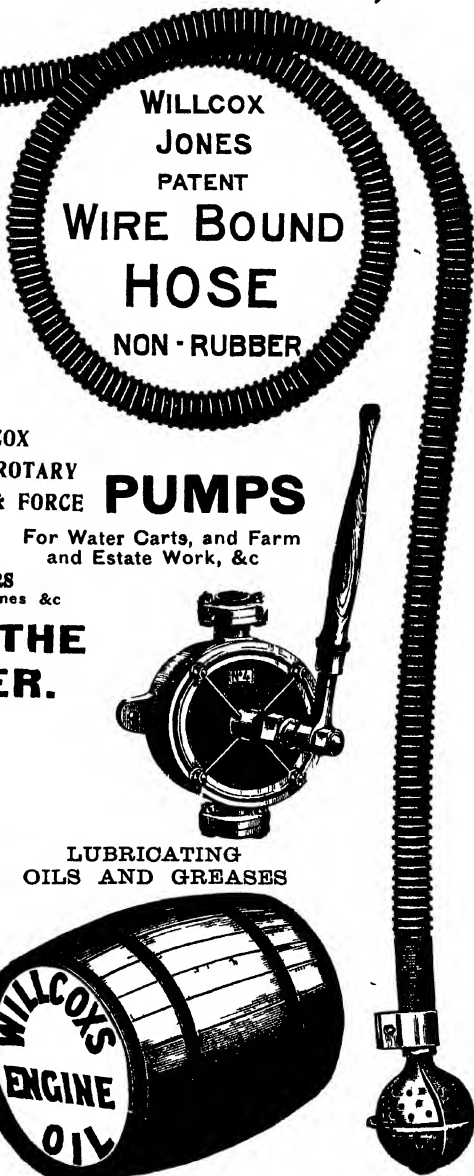


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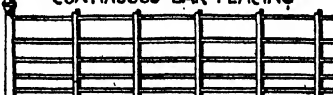



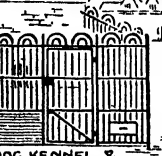

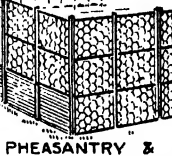
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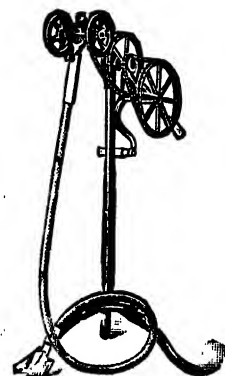
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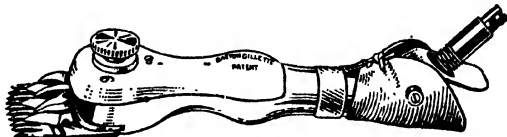
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